FAA Safety BRIEFING

January/February 2012

Your source for general aviation news and information

New Pilot's GUIDE

Federal Aviation Administration

www.faa.gov/news/safety_briefing/

In the January/February 2012 issue of FAA Safety Briefing *we explore some of the resources available to help you in your initial quest for pilot certification, as well as the lifelong quest to improve your aeronautical knowledge.*

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JOHN ALLEN
DIRECTOR, FLIGHT STANDARDS SERVICE

Jumpseat

Aiming for Aviation Excellence

Perfection is not attainable, but if we chase perfection we can catch excellence.
–Vince Lombardi

Whether you're just beginning to fly or you're now logging your flight time in five-digit numbers, I think it's safe to say that you have yet to achieve the perfect flight. But, I hope you will never stop aiming for aviation perfection, because that is the key to excellence.

Excellence in aviation education and training is very much on my mind these days. You may recall that I wrote a few months ago about my dream for a United States Aviation Academy Program. Though this idea arose in part from my concern about the looming shortage of well-qualified pilots and aviation maintenance technicians (AMTs), excellence is at the very heart of the concept. To me, aviation excellence, like perfection, is not a destination. Rather, it is a lifelong journey that requires the traveler to be alert, open to new ideas, and passionately committed to learning as much as possible. And, I don't mean learning that is limited to technical stick-and-rudder skills. If aviation is your calling, excellence means making every effort to master both the art and the science of your chosen craft.

(Aviation) Art Appreciation

Both the art and the science of aviation involve mastery of certain knowledge, skills, and attitudes. Let's start with knowledge and attitudes. It is certainly possible to physically operate an airplane without any knowledge of aviation history or acquaintance with the many aviation heroes and legends who pioneered the possibilities we take for granted today. But taking for granted any part of the privilege of flight is not consistent with aviation excellence.

Aviation history is fascinating. Its pioneers are amazing and inspiring. Aviation literature offers some of the best adventure stories in the English language (think Ernest Gann) plus authors who, like Anne Morrow Lindbergh and Beryl Markham, skillfully paint the beauty and poetry of the sky. An attitude of gratitude for flight and an unquenchable thirst for greater knowledge are hallmarks of aviation excellence.

Appreciating the art of aviation also involves refining your technical skills. Strive to be silky smooth on the controls. Don't just muscle the aircraft around; instead, develop the art of "thinking" it into exactly the position you want it to go.

(Aviation) Science Projects

Excellence in aviation science is another lifelong project. You can never have enough knowledge about the aircraft you're flying, the avionics you're using, the airspace you're flying in, the atmosphere around you, the airports you visit ... you get the idea. Aviation is never boring, because there is always so much more to know, to do, and to learn.

I also encourage you to pursue perfection by seeking excellence in every aspect of your technical aviation skill. Can you hold headings and altitudes exactly as assigned? Can you achieve and maintain your target airspeeds? Do you know the numbers for the attitude-plus-power-equals-performance equation specific to each phase of your aircraft's operation? Can you consistently and reliably land within or, better yet, exceed, the established standards for the level of your pilot certificate? Do you know how to operate all the systems in your aircraft, in both normal and abnormal or emergency situations? The list is endless, and so is the learning.

Then, there is the science of a proper and professional attitude. Do you consistently, and conscientiously, use the checklist? Do you take the "all available information" requirement in 14 CFR section 91.103 seriously in approaching your preflight planning? Again, the list goes on.

As you contemplate the many aspects of aviation excellence, let me close by recommending a favorite essay: "School for Perfection" in Richard Bach's *A Gift of Wings*. As the author observes, the goal (also my goal) is to foster "pilots coming along that know more about flying than how to steer an airplane." Enjoy!

ATIS Aviation News Roundup

FAA Launches Wildlife Strike Outreach Campaign

A new FAA poster outreach campaign encourages members of the general aviation (GA) community to report potentially hazardous bird strikes.

Launched in November, the outreach campaign targets the GA community — including pilots, airport sponsors, mechanics, engine manufacturers, students at aviation schools, and aviation organizations — to increase wildlife strike reporting at airports. The GA community accounts for only 6 percent of the total bird strikes reported, which totals more than 100,000 reports, according to a recent study.

Through increased and concentrated educational outreach, the agency hopes to close the strike reporting gap between the more than 2,000 GA airports and the FAA-certificated airports that operate with an increased level of safety and oversight. The agency created a poster that depicts a caution sign with a bird inside and the simple message, "Report Wildlife Strikes." Copies of the poster have been delivered to GA airports, aviation schools, other organizations and associations, and to part 139 certificated airports for placement in highly used areas, such as training and break rooms.

More information about the agency's initiatives to reduce strikes, including technology, research, and partnerships, is available at https://www.faa.gov/news/fact_sheets/news_story.cfm?newsId=13209. Be sure to check out the article on wildlife strikes in the November/December 2011 issue of FAA Safety Briefing.

Bulletin Highlights Fuel Tank Water Contamination Hazard

FAA issued a Special Airworthiness Information Bulletin (SAIB) in November 2011 advising pilots, owners, operators, and maintenance personnel about the dangers of water contamination in an aircraft fuel tank system. The SAIB is similar to one issued for Cessna aircraft in July 2010, but now has broader application for all GA aircraft.

The SAIB states that water may enter the fuel tank system via any penetration in the wing fuel tank and from moisture condensation inside the tank. Owners and operators should assume some water exists in their airplane's fuel tank system. The SAIB outlines a series of preventive steps you can take to help safeguard your airplane from the dangers of water contamination.

The FAA recommends you become familiar with all drain locations on your model of aircraft and check each one before flight, regardless if you refueled or not. The SAIB also recommends keeping your fuel tanks full between flights to minimize condensation, and to limit your fuel tank's exposure to large temperature fluctuations when possible.

For more information, the SAIB (CE-12-06) is available online at http://rgl.faa.gov/Regulatory_and_Guidance_Library/rgSAIB.nsf/(LookupSAIBs)/CE-12-06?OpenDocument.

Incentives Offered for Attending FAASTeam Seminars

To motivate more people to attend FAASTeam seminars, Gleim Publications will offer WINGS-approved online courses to FAASTeam representatives and FAASTeam program managers for use as door prizes.

The material provided at FAASTeam seminars supplies pilots with valuable resources and information that fosters continued growth and greater safety of the aviation community. With this offer, Gleim hopes to provide an additional incentive for pilots to attend and actively participate at these seminars and in the WINGS program.

At the option of the presenter, Gleim will provide one certificate for a free online course to be used as a prize at each seminar. The offer is valid for all FAASTeam safety seminars that provide WINGS credit and are personally hosted by a FAASTeam program manager or FAASTeam representative.

Courses offered by Gleim include:

- Safe Pilot Course
- Security-Related Airspace Course
- Flight Review Ground Training Course
- Instrument Pilot Refresher Course
- Multi-Engine Add-On Rating Course
- Seaplane Add-On Rating Course
- Garmin G530 Training Course
- Online Communication Course

Quick WINGS

In a society of instant movie downloads and 90-second fast food orders, we've become accustomed to having speed and efficiency emphasized in nearly everything we do. So why not also with the WINGS program? Expected in early 2012, a new Quick WINGS feature will be added on FAASafety.gov that provides single-click access for pilots to view and print an activities checklist for the Basic level of WINGS. The checklist will include a complete listing of activities and tasks to complete the flight requirements, and may include online courses, seminars, and other activities to satisfy the three knowledge requirements. Quick WINGS will be available only for the Basic level of the WINGS Program.

To take advantage of the Quick WINGS feature, you must be a pilot and be logged in and registered on FAASafety.gov as an airman. General user logins will not be able to access Quick WINGS. Registering as an airman is one-time action that requires you to enter your airman certificate number so the program can link you to the main Airman Registry. You can confirm your user status on FAASafety.gov by checking your log-in display after you log in. If you are not an airman, or choose not to upgrade your user account, you can still print your WINGS Checklist from your My WINGS page.

More information on Quick WINGS is available in the recently revised WINGS User's Guide at http://www.faasafety.gov/documents/Wings_Manual.pdf.

FAA Creates Laser Information and Reporting Website

To combat the growing problem of lasers directed at aircraft, the FAA created a website to make it easier for pilots and the public to report laser incidents and to obtain information on the subject. The website, which is at www.faa.gov/go/laserinfo, collects a wide array of laser information into one location. It includes links for reporting laser incidents, laser statistics, FAA press releases, and FAA research on the dangers lasers can pose to pilots as well as downloadable videos.

Laser event reports have increased steadily since the FAA created a formal reporting system in 2005 to collect information from pilots. Reports rose from nearly 300 in 2005 to 1,527 in 2009 and 2,836 in 2010.

The Do's and Don'ts of Maneuvering Flight

Nearly one-third of all fatal accidents occur during maneuvering flight, in part because maneuvering at low altitude limits the amount of time a pilot has to recover. Maneuvering flight is basically any type of flying performed close to the ground — even the traffic pattern is considered maneuvering!

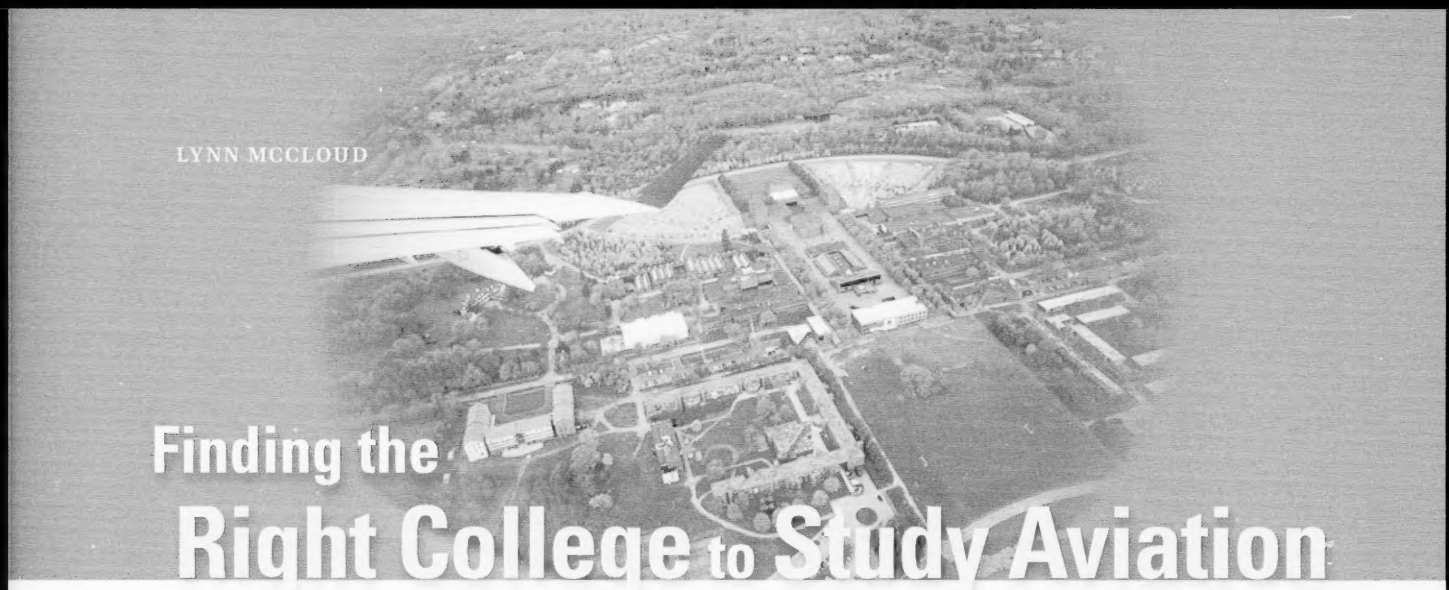
Here are some do's and don'ts that can help keep you safe:

DO:

- Remember that the majority of fatal stall/spin accidents occur at low altitudes because the closer you are to the ground, the less time you will have for a successful recovery.
- Practice stalls or approaches to stalls at a safe altitude. If you're rusty, take a CFI with you.
- Fly at a safe altitude so that you won't be surprised by obstacles that may require abrupt maneuvers to avoid.
- Remember that turns and sudden climbs increase the wing loading, which in turn, will increase the stall speed, sometimes dramatically.

DON'T:

- Explore the flight envelope close to the ground.
- Exceed 30 degrees of bank in the traffic pattern.
- Buzz or otherwise show off with an aircraft. Not only are you putting yourself at risk, but your pilot certificate, too. Many of the complaints FAA receives include cell phone pictures and videos.
- Attempt maneuvers for which you have not been trained. Get a CFI on board the first time.



LYNN MCCLOUD

Finding the Right College to Study Aviation

Where do you start if you are looking for the right college to study aviation? It's not like real estate with its famous maxim "location, location, location." Location might figure into your thinking, but there are other important factors, such as course of study, cost, and, importantly, accreditation.

"A good starting point," says James Brough, FAA National Aviation and Space Education Program manager, "is to visit the Aviation Accreditation Board International (AABI) website (www.aabi.aero) and check out its list of accredited aviation programs."

Being accredited means the AABI has reviewed a degree-granting aviation program and determined that it meets a defined set of standards. This is a good filter for applicants to know they are applying to a rigorous program that will provide needed training to get their aviation career off to a strong start. Programs accredited by AABI are, in most cases, accredited by organizations that review the entire institution. This level of accreditation is an assurance that students can receive Federal financial aid and that earned credit can transfer between institutions — both important considerations.

The University Aviation Association has an excellent section on its website on "Considerations When Choosing a School."

Then, it's time to dig deeper. Do you want pilot training (fixed wing and/or rotorcraft)? Do you want to study aeronautical engineering? Or, are you interested in pursuing a career as an air traffic controller, an aviation maintenance technician, or in airline or airport management? You may not be sure. Whether it's one or all of the above, it means spending time on each school's website to see which ones offer a course of study in your area of interest. For those who want flight instruction, another good question is asking if the school tries to hire its graduates as flight instructors. Also, find out what kind of internship programs and/or cooperative education programs each school offers. These programs can help you obtain valuable experience that is helpful when applying for jobs. For all the schools, ask about their career placement services and about job placement rates.

Cost is a big consideration and can vary significantly between public and private institutions of higher education. The University Aviation Association, whose more than 500 members include 105 accredited colleges and universities, has an excellent section on its website on "Considerations When Choosing a School." It addresses financial aid, scholarships, transferring credit, credit for work experience, credit for military coursework, and credit for FAA certificates.

It's always a good idea to visit the campus and to talk with students about their experiences. If you want flight instruction, check out the airport the school uses. If you're interested in maintenance or avionics, check out the shops. How new is the equipment? How welcome are you made to feel? Or, as one friend did with his children to get to that gut-level instinctual feeling, ask yourself, "Can I picture myself here?" That might just be the tipping point to decide where your career is going to take flight.

Learn More

List of AABI accredited programs
www.aabi.aero/programs.html

University Aviation Association member colleges and universities
http://www.uaa.aero/default.aspx?cid=LCwLnRMIhRg=

"Considerations When Choosing a School," University Aviation Association
http://www.uaa.aero/default.aspx?scid=yCySry3gnDk=&mp=0

FREDERICK E. TILTON, M.D.
FEDERAL AIR SURGEON

Aeromedical Advisory

Medical Certification: Where Do I Start?

Every potential aviator faces the same question: Where do I start? Many people think flying would be fun or perhaps they think they want to become a professional pilot, but are not sure what they need to do to make life in the clouds a reality. Regardless of the final flying objective, they all must begin somewhere.

Before worrying about obtaining a medical certificate, I suggest you find a flight instructor and take a few lessons to make sure flying is really for you. Then, if you are certain you want to pursue aviation further, you will want to determine the type of flying you think you want to do. If your initial goal is simply to learn how to fly for recreation, you may not need a medical certificate. A few years ago, the FAA launched a Sport Pilot program that allows individuals to fly light aircraft with only a valid driver's license as long as he or she has never applied for an FAA medical, or their most recent medical application has not been denied, suspended, unissued, or revoked.

If you wish to fly larger or more complex airplanes, or you intend to become a professional pilot, you will need to obtain a medical certificate. There are three types of FAA medical certificates. A first-class medical is required to exercise the privileges of an Airline Transport Pilot (ATP); a second-class medical is required to fly as a commercial pilot (this certificate allows a person to receive compensation to fly); and a third-class medical is required to fly as a private pilot.

When you are just beginning, there is no reason to apply for anything other than a third-class medical unless you are enrolling in a program that requires a higher class of medical certificate. The only differences between the three exams are: the eye standards (they are more rigorous for first- and second-class medicals); an electrocardiogram for any initial first-class medical exam over age 35, and then annually over age 40; and the frequency requirements for the three examinations. Please note that some professional programs or colleges require a higher class of certificate to enter their program. So, unless you are enrolling in a program that requires a higher class of exam, apply for a third-class medical and ask your aviation medical examiner (AME) if you would meet the more rigorous standards for the other examinations. If you want to, you can look up the medical standards in 14 CFR part 67 or ask your AME for help.

Finding a Good Partner

An important step in getting your first medical is to find a good AME who should be your partner in the medical certification process. He or she should be able to answer any questions you have as well as be prepared to act as your advocate in the process, while still ensuring you meet the requirements to fly safely. You can start your search by going to www.faa.gov/pilots/amelocator/ where you will find a list of AMEs in your area.

An important step in getting your first medical is to find a good AME.

You may also want to seek recommendations from local pilots or pilot advocacy organizations before you make a selection. If, for example, you have a medical condition that would require a special issuance (waiver), look for an AME who has experience working with pilots on special issuance. An AME who is familiar with your particular condition is even better.

All of us in the FAA's Office of Aerospace Medicine are committed to getting as many pilots as we can safely into the air. We stay abreast of medical advances and research findings so we are able to certify pilots with conditions that were disqualifying in the past.

I wish you all a safe flying future.

Frederick E. Tilton, M.D., M.P.H., received both an M.S. and an M.D. degree from the University of New Mexico and an M.P.H. from the University of Texas. During a 26-year career with the U.S. Air Force, Dr. Tilton logged more than 4,000 hours as a command pilot and senior flight surgeon flying a variety of aircraft. He currently flies the Cessna Citation 560 XL.

Fast-track Your Medical Certificate

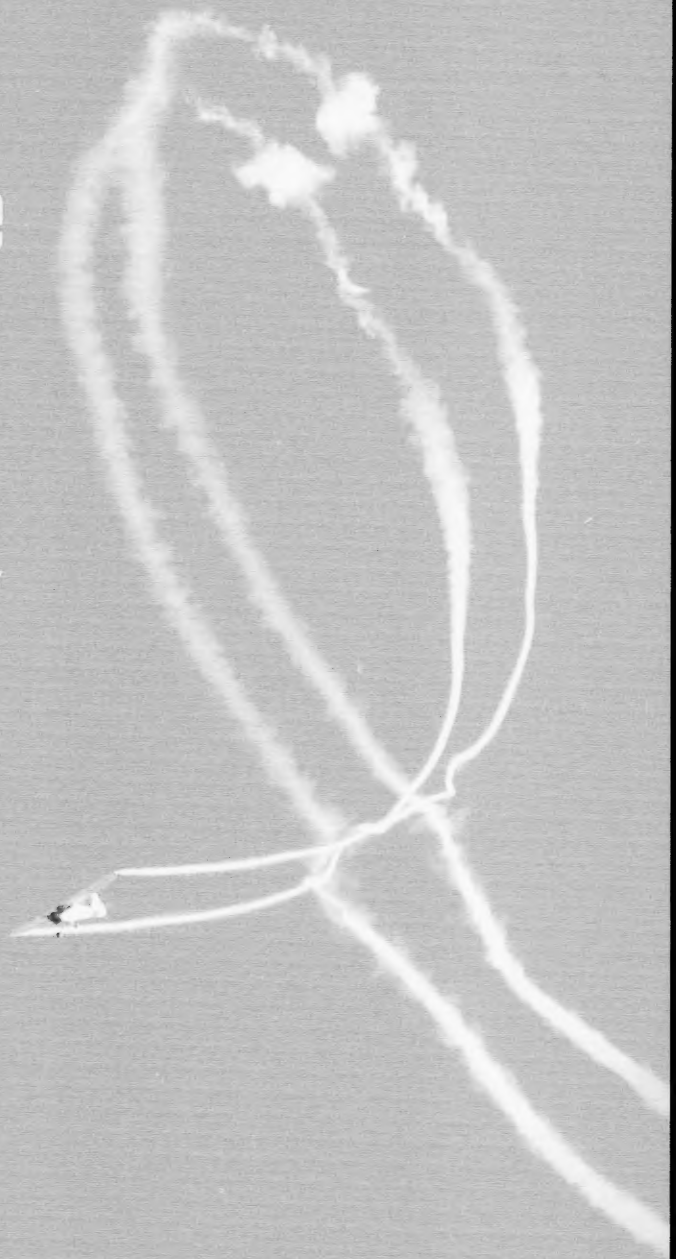
With FAA MedXPress, you can get your medical certificate faster than ever before.

Here's how: Before your appointment with your Aviation Medical Examiner (AME) simply go online to FAA MedXPress at https://medxpress.faa.gov/ and electronically complete FAA Form 8500-8. Information entered into MedXPress is immediately transmitted to the FAA and forwarded to your AME before your medical examination.

With this online option you can complete FAA Form 8500-8 in the privacy and comfort of your home and submit it before your appointment.

The service is free and can be found at:

https://medxpress.faa.gov/



DR. WARREN S. SILBERMAN

Ask Medical Certification

Up, Up, and Away!

After almost 15 years in a second career with the FAA's Civil Aerospace Medical Institute — his first was as a flight surgeon in the U.S. Army — Dr. Warren Silberman retired in December 2011 from his position as manager of the FAA's Aerospace Medical Certification Division (AMCD).

Those of us who fly through special issuance medical certificates owe a special thank you to Dr. Silberman, whose dedication and tireless efforts have truly made a difference. A pilot himself, Dr. Silberman enjoys his fellow flyers and made it his goal to assure that every pilot who could safely fly would be medically certified to do so. Under his leadership, the AMCD dramatically cut special issuance processing time. Dr. Silberman devoted many hours to meeting and helping pilots at air shows, seminars, and other aviation events around the country and, as you see in these pages, he provided many valuable contributions to FAA Safety Briefing magazine.

You might remember from the January/February 2009 FAA Faces profile that Dr. Silberman is a lifelong fan of Superman. (http://www.faa.gov/news/safety_briefing/2009/media/JanFeb2009.pdf, page 37) As Dr. Silberman moves up, up, and away from the FAA, we offer our thanks for his never-ending battle for truth, justice, and helping pilots stay up in the air, as well as our very best wishes for the next chapter in his life.

Q: I met you (Dr. Silberman) at Oshkosh in August 2010. I asked you several questions about the new rule regarding approved medicines for depression. I am now working with a pilot who is off flight status as he is taking medicine for depression. He and his doctor would like to have him on Cymbalta. Do you foresee a time when Cymbalta will be approved as a medicine that a professional or GA pilot can take and still qualify for a first, second, or third-class medical?

A: The four medications that have been approved (Prozac, Zoloft, Celexa, and Lexapro) were chosen because they have the least sedative effect and the most favorable side-effect profile. It is possible that other *selective serotonin reuptake inhibitors (SSRI), or antidepressants* will be eventually added, but not in the near future.

Q: I applaud the work done to approve SSRI and I believe it was the right thing to do. I have flown LSA since its arrival and I currently fly my homebuilt.

When the SSRI rule came out, I was very excited with hopes to upgrade so I can get my private- pilot certificate and have that third seat for my soon-to-arrive daughter. I discontinued Paxil, which I had been on since 2003. Paxil had no side effects for me and it put the depression into complete remission. I tried each of the approved medications and found that none of them are effective. I returned to Paxil and am depression free. Do you have any plans to re-evaluate Paxil? Please reconsider Paxil. If need be, you have a ready-and-waiting guinea pig!

A: The group that developed the current protocol did consider Paxil, but it was not chosen. As I mentioned earlier, the drugs chosen were noted to have the least sedation effect and the most favorable side-effect profile.

Q: I'm a returning vet. Can I be treated for PTSD and still fly?

A: If you are being treated through counseling sessions, you may be able to gain medical certification. You need to get copies of your medical records, plus a good status report, and take them to an aviation medical examiner (AME). The AME should be able to give you some idea of your chances. Alternatively, the AME can phone the FAA to discuss your situation. If you are taking one of the four acceptable medications and have been on a consistent dosage for 12 months, you need to follow the instructions on the FAA Medical Certification website. The requirements are listed here:
www.faa.gov/about/office_org/headquarters_offices/avs/offices/aam/ame/guide/app_process/exam_tech/item47/amd/antidepressants/

SUSAN PARSON

Flying is Not a Spectator Sport:

Taking an Active Role in Your Flight Training

Teaching is my family profession. Though I went to the ends of the earth — literally, during my years as a diplomat — in my youthful zeal to forge a non-standard career path, I saw the family profession in a different light when I discovered the right subject (aviation, of course). Not surprisingly, I have both absorbed and independently formed a lifetime's worth of strong opinions about what constitutes effective teaching and learning.

Perhaps the strongest of these is my belief that, contrary to the way many of us are schooled in this country, effective learning is not a spectator sport. On the contrary, one of the most important elements in education is a learner who is engaged, which means being an active participant in his or her own learning process and experience. That does not require, or even imply, academic anarchy. As one of my instructors likes to say, "You don't know what you don't know." Rather, learner engagement — especially for adult learners — implies a student who regards learning as a participatory process and acts accordingly.

What does learner engagement look like in flight training? Here are a few suggestions for taking an active role in your journey to pilothood.

Photo by James Williams

Show Up...

You've probably heard the wry cliché that 90 percent of success in life results from the simple act of "showing up." If showing up is understood in a broader sense, I'll agree that the cliché works for flight training. Here's what I mean.

First, showing up means being physically present for *regularly* scheduled ground and flight lessons. To be sure, flight training is expensive. But in my experience, both as a flight training student and as an instructor, I have painfully learned that regularly scheduled and frequent lessons are more cost-effective than taking a lesson every 4-6 weeks. Especially in the earliest stages, when everything is new and easily forgotten, frequent lessons are key to effective learning and retention.

Second, showing up means being mentally present, that is, alert and prepared. Although most of us associate homework with the bad ol' days of primary school, solid preparation is key to being an effectively engaged flight student. If you're going to ground school, there's no substitute for reading the assigned material before you take your seat in the classroom. If there are practice exercises, e.g., performance calculations, do enough to either master the material or pinpoint the knowledge gaps you can ask about in class.

For flight training, a favorite learning technique is the sandwich. The lesson itself is the meat, and pre- and post-lesson preparation make up the slices of bread that keep the meat in place. Before the lesson, mentally review the maneuvers and procedures you learned last time and familiarize yourself with the activities slated for this one. After the lesson, while the experience is still fresh in your mind, mentally replay what happened. We'll have more on that idea in a moment.

...and Pay Attention!

If 90 percent of success comes from showing up, the other 10 percent comes from paying attention. Though I'm not a parent, I sometimes joke that the flight training process is akin to compressed parenthood. Just like a parent with a newborn, the flight instructor starts with a person completely dependent on him or her for survival itself. Then, like a parent, the instructor's task is to help develop the knowledge, skills, and attitudes the student needs to safely operate alone.

The instructor clearly bears a huge responsibility, but so does the student. The actively engaged flight student needs to pay attention: Watch, listen, and work to put perceptions from each training experience into a broader context. Never hesitate to ask questions. And, since few instructors are gifted with mind-reading ability, tell us what you see, hear, and think it means. That gives the instructor a chance to validate accurate perceptions and correct any misperceptions at the earliest opportunity.

To encourage more active participation by the flight-training student, the FAA *Aviation Instructor's Handbook* suggests a postflight debriefing technique called the "collaborative critique." In the traditional assessment we all remember from grade school, the student sits quietly while the instructor marches through a laundry list of quibbles about the student's performance. In the collaborative critique, however, the instructor guides the student through a four-step process to *replay*, *reconstruct*, *reflect*, and *redirect* the flight experience.

Solid preparation is key to being an effectively engaged flight student.

- First, the learner gets to *replay* the flight with a verbal review of what happened and when. For instance, the student might recall a directional control issue on the takeoff roll, observe that the climb was accomplished precisely at Vy, but acknowledge difficulties in holding the assigned altitude.
- Second, the learner tries to *reconstruct* specific parts of the flight by stating what could have, or should have, been done differently. In the directional control example, the student might note that more rudder pressure would have eliminated the problem.
- Third, the learner takes a step back to *reflect* on the flight as a whole. A good takeaway from this part of the postflight debriefing is to verbalize the most important lessons learned from this particular flight.
- Fourth, the learner seeks to *redirect* today's thinking and learning to the next lesson. For instance, the goal might be to take specific control actions to improve directional control on the ground and altitude control during the flight.

If your instructor doesn't use this technique, you may want to suggest it. A good instructor is always open to new ideas and techniques, but if you are not comfortable with the idea of teaching the teacher, there is nothing to prevent you from independently running the 4-R collaborative critique at the end of each training flight. The point is to

Photo by H. Dean Chamberlain

develop judgment by providing a structured framework for paying attention, assessing the situation, and validating your perceptions.

Seek Out Scenario-Based Training

Another way to develop judgment is to train like you plan to fly. If you are learning to play the piano, there will certainly be times when you can learn from practicing individual notes and scales. The goal, though, is to learn to play songs. Learning to fly has a few things in common with learning to play a musical instrument. The maneuvers you learn — starting with the four fundamentals of straight and level flight, climbs, turns, and descents — are like notes and scales. Knowing how to fly the maneuvers according to the requirements of the Practical Test Standards, or PTS, is very important. But operating safely in the real world requires not only rearranging the basic maneuvers to accomplish the trip or mission you intend to fly, but also flying them in the context of real world operational pressures and constraints.

The collaborative critique involves a four-step process to *replay, reconstruct, reflect,* and *redirect* the flight experience.

That's the reason for the emphasis on scenario-based training, or SBT. Scenario-based training is a training system that uses highly structured scripts of real world experiences to meet flight training objectives in an operational environment. There are several key words in this definition. First, SBT is a training *system*. That means that the SBT concept is integrated into all phases of flight training; it isn't an activity for just one lesson or for part of a lesson. Second, SBT uses real world experiences. Instead of teaching maneuvers in the abstract, the idea is to put them into a real world context. Third, the experiences take place in the real world operational environment.

SBT promotes the development of judgment and decision-making by including the kind of consequences or external pressures that the pilot will inevitably face outside the training environment. The beauty of scenario-based training is that it puts the traditional PTS tasks in the context of missions that mimic the kind of flying you will actually do.

To be an effectively engaged flight training student, you might use the SBT approach to planning your dual and solo cross-country flights. For example, cross-country flight training can be structured as planning for a family vacation that you might really want to take in an airplane. The importance of comprehensive flight planning becomes very real when you have to put it in specific terms: how many people and how many bags can be carried and how they must be loaded. In another example, the turns-around-a-point maneuver might be a lot less abstract and academic if you think of it as an aerial photography mission.

The real world operational environment leads to another important benefit of SBT: Pilots who train with SBT more quickly develop the habit of carefully and thoughtfully considering all aspects of the flight as it progresses. They also learn the critical skill of making, and carrying out, realistic contingency plans to deal with unexpected events, one thing we can always expect to see on any given flight.

To sum up, let's go back to the piano analogy. The traditional approach to flight training and testing is more like a piano recital, in which you work to perfect a specific and known arrangement. But real life flying is more like taking requests at a party. The party guests aren't going to be interested in hearing you play scales, no matter how proficient you are in playing them. And the real life operational environment is not going to let you fly very long if you don't know how to use your judgment to fly in accordance with the complex and sometimes conflicting demands of weather, passengers, mission requirements, and other factors.

If you are a current or recently graduated student pilot with tips to share on how to make training more efficient and effective, we'd love to hear them. Use the QR code for a VFR direct trip to our mailbox, and we'll print the best tips in a future issue.

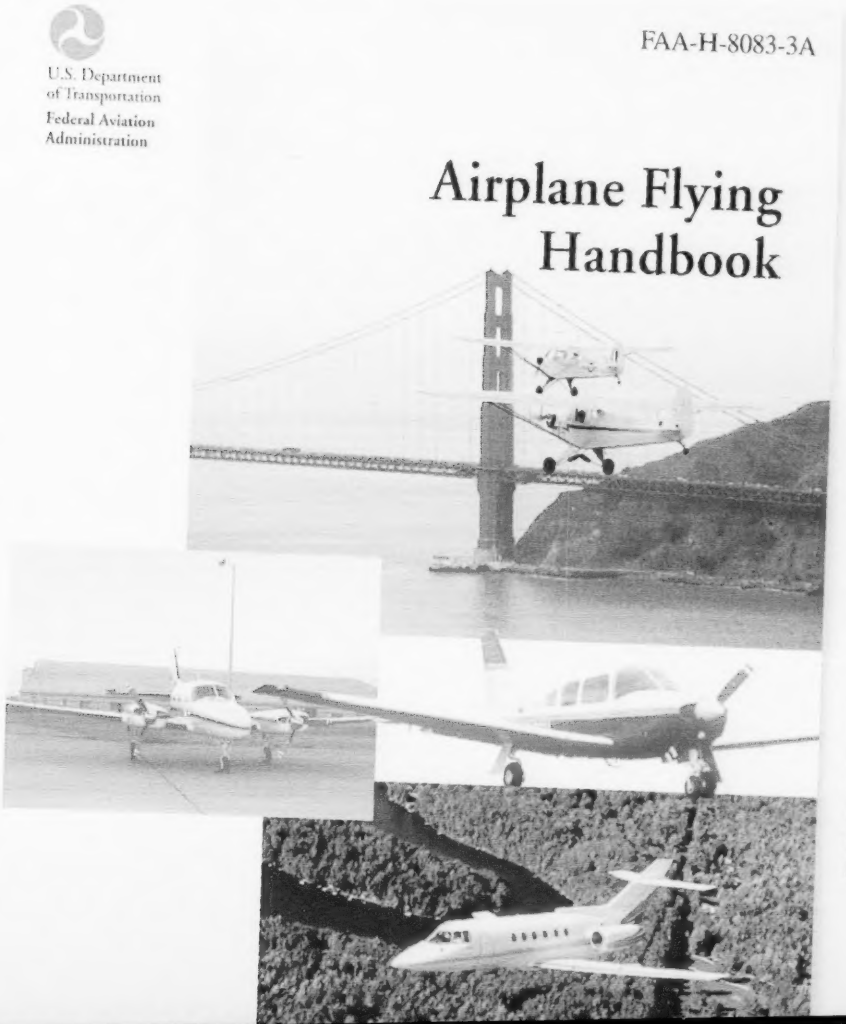
Susan Parson is a Special Assistant in the FAA's Flight Standards Service and editor of FAA Safety Briefing. *She is an active general aviation pilot and flight instructor.*

SUSAN PARSON

FAA Handbooks

for the Aspiring Aviator

Even for those who harbor no doubts about learning to fly, the necessary commitment of time and resources can still make it a momentous decision. In my case, the decision was additionally complicated by my near-complete ignorance of, well, *everything* involved in the process. I had heard about ground school, whatever that entailed; the need for flight school was obvious enough.



One of the many FAA resources available, the Airplane Flying Handbook is more of a "how-to" guide that introduces basic pilot skills.

U.S. Department of Transportation
Federal Aviation Administration

Advisory Circular

DATE: 5/24/95
AC NO: 90-89A

AMATEUR-BUILT AIRCRAFT AND ULTRALIGHT FLIGHT TESTING HANDBOOK

Initiated by: AFS-340

I was vaguely familiar with the requirement for some kind of medical clearance. But I was utterly baffled by the jargon that my well-meaning pilot friends used in trying to offer advice. Some urged me to seek a part 141 school. Others noted that part 61 would provide everything I needed. I was embarrassed to ask what those numbers meant. Then, there was chatter about the Fizz-doh, which is where I needed to go back then to take the "written" (now known as the "knowledge test"). How was I supposed to know that Fizz-doh was really FSDO, more properly called the Flight Standards District Office?

The FAA has a lot of useful material on a wide range of topics.

These days, the Internet (popularized after my beginnings in aviation) provides a wealth of resources for fledgling flyers. What you may not realize — I didn't — is that the FAA has a lot of useful material on a wide range of topics. Though you can purchase hard copies from a variety of commercial vendors, the FAA's resources are all available online at no charge other than the paper and printer ink required to print hard copies. Let's take a look at a few resources you might encounter — or seek to encounter — in the early stages of your flight education and training.

Student Pilot Guide

Had I known it existed when I was considering flight training, a trip through the FAA's *Student Pilot Guide* (FAA-H-8083-27A) would have helped clear the clouds of jargon-generated confusion. As stated in the guide's foreword, this publication is intended to serve as a guide not only for prospective student pilots, but also for those already engaged in flight training.

The guide outlines the general procedures for obtaining FAA student pilot, sport pilot, recreational pilot, and private pilot certificates. In addition, the *Student Pilot Guide* explains the role of the FAA (including an explanation of those mysterious Fizz-dohs). It describes the requirements for obtaining a pilot certificate, offers guidance on choosing a flight school and a flight instructor, and provides suggestions on studying for the knowledge ("written") and practical tests. The guide also includes a list of frequently asked questions and answers, along with a handy list of FAA resources.

Pilot's Handbook of Aeronautical Knowledge

One of the first FAA documents I did find was the *Pilot's Handbook of Aeronautical Knowledge* (PHAK – FAA-H-8083-25A), which my private-pilot ground-school instructor assigned as the basic text for our six-week course. Though I have since read and used a number of commercial ground school textbooks, I still keep the latest edition of the PHAK in my personal aviation library. Its purpose, as stated in the preface, is to introduce pilots to the broad spectrum of basic, but essential, aeronautical knowledge they will need in their aviation education and training experience.

After a brief history of aviation, the PHAK launches into that "broad spectrum" of topics: aircraft structure, principles of flight, aerodynamics, flight controls, aircraft systems, flight instruments, flight manuals, weight and balance, aircraft performance, weather theory, aviation weather services, airport operations, airspace, navigation, aeromedical factors, and, last but not least, aeronautical decision-making.

The chapter on aeronautical decision-making includes information on crew and single-pilot resource management (CRM and SRM). It provides models and tips for situational awareness and aeronautical decision-making. Recognizing that automation is increasingly common in the general aviation (GA) fleet, the latest edition of the PHAK also addresses automation and automation management.

Airplane Flying Handbook

While the PHAK focuses on the conceptual knowledge a pilot needs for safe operation in the National Airspace System (NAS), the *Airplane Flying Handbook* (AFH – FAA-H-8083-3A) is more of a "how-to" guide — a technical manual to introduce basic

pilot skills. Specifically, the AFH provides information and guidance in the performance of procedures and maneuvers required for various levels of pilot certification. Though the AFH recognizes that there are different ways of teaching, as well as of performing flight maneuvers and procedures, its discussion and explanations reflect what the FAA perceives as the most commonly used practices and principles.

Although instructors at the flight school I attended to earn my private pilot and commercial pilot certificates used a commercial flight training syllabus and maneuvers guide, I became very familiar with the AFH when I transitioned to complex, high-performance, and multi-engine aircraft. In addition to providing pilots with a detailed explanation of basic maneuvers and procedures for pilot certification, the AFH offers tips and techniques for transition to other airplanes. For example, the high-performance transition chapter discusses both the theory and mechanical operation of the constant speed (controllable pitch) propeller and the chapter on multi-engine flying introduces the operation of systems found in a typical multi-engine airplane as well as the performance of maneuvers required to earn a multi-engine rating.

Weight and Balance Handbook

The *Aircraft Weight and Balance Handbook* (AWB - FAA-H-8083-1A) is not widely known, but I found it very helpful in mastering both the concepts and methods for the critical task of calculating the aircraft's center of gravity, or CG. The AWB begins by explaining the basic principles of aircraft weight and balance control, emphasizing its importance and including examples of documentation furnished by the aircraft manufacturer and by the FAA to ensure the aircraft weight and balance records contain the proper data. Also of interest to pilots is a chapter devoted to the range of methods, examples, and tools for determining aircraft weight and balance.

For the mechanically inclined, the AWB provides information an airframe and powerplant (A&P) technician or repairman needs to determine the weight and CG changes resulting from repairs or alterations. And, even though you may never perform the task, it helps to be familiar with the proper procedures for weighing an aircraft and determining its empty-weight center of gravity.

FAASafety.gov

The FAA offers an ever-growing host of resources for pilots and aviation maintenance technicians (AMTs) through FAASafety.gov, the web application maintained by the FAA Safety Team (FAASTeam). In addition to online courses developed by a variety of FAA and industry providers, the FAASafety.gov site includes a searchable library, links organized by both topic and pilot certificate level, and a "maintenance hangar" for AMTs.

FAASafety.gov is also the portal to the FAA's WINGS Pilot Proficiency Program, which is based on the premise that pilots who maintain currency and proficiency in the basics will enjoy a safer and more stress-free flying experience. To accomplish this objective, the program guides participants on developing an ongoing training program that encourages regularly flying with an authorized flight instructor. The program is most effective if the training takes place throughout the year, which provides you the opportunity to fly in different seasons and in different flight conditions. The program includes specific subjects and flight maneuvers for each aircraft category and class. (More on the WINGS program can be found on page 20.)

The Airplane Flying Handbook is more of a "how-to" guide — a technical manual to introduce basic pilot skills.

As you'll quickly discover, the handbooks and resources described here are just a small sample of the training and guidance material available on the FAA website. For a complete list of the FAA's training handbooks and manuals, see http://www.faa.gov/library/manuals/.

Susan Parson is a Special Assistant in the FAA's Flight Standards Service and editor of FAA Safety Briefing. *She is an active general aviation pilot and flight instructor.*

Learn More

Student Pilot Guide, FAA-H-8083-27A
http://www.faa.gov/library/manuals/aviation/media/faa-h-8083-27a.pdf

Pilot's Handbook of Aeronautical Knowledge, FAA-H-8083-25A
http://www.faa.gov/library/manuals/aviation/pilot_handbook/

Airplane Flying Handbook, FAA-H-8083-3A
http://www.faa.gov/library/manuals/aircraft/airplane_handbook/

Aircraft Weight and Balance Handbook, FAA-H-8083-1A
http://www.faa.gov/library/manuals/aircraft/media/FAA-H-8083-1A.pdf

Photo by H. Dean Chamberlain

JAMES WILLIAMS

Know *the* Score:

What to Know Before Your Check Ride

Sweat rolls down your brow and has long since soaked through your shirt. Your chest feels tight, to the point that you wonder if it's about to choke off all air flow to your lungs. Your hands are so tightly clenched on the yoke that you're surprised the yoke hasn't cracked and broken under the pressure.

Why all the stress? It's just the most important landing of your life. No, there are not 200 people seated behind you in the aircraft. In fact, there's only one other person in the aircraft — the FAA's designated pilot examiner (DPE) — and that individual is administering your very first check ride. The DPE sitting next to you is charged with evaluating whether you have what it takes to qualify as a fully-fledged certificated pilot. The DPE first takes you through an oral exam that, from your point of view, is a brutal interrogation. And now, this maniacal mystery pilot wants you to perform an endless list of maneuvers and tasks in flight, inch perfect. How could anyone pass?

Keeping things in perspective can help you manage, even reduce, the stress level occasioned by your initial check ride.

Removing the Mystery

First things first. Keeping it in perspective can help you manage, even reduce, the stress level occasioned by your initial check ride. Just remember that even if you don't pass on the first try, you can always retake the check ride. It also helps to understand that the pilot administering the check isn't mysterious, malicious, or even mean spirited. But theirs is a serious job: They are entrusted with the responsibility of making sure you meet the aeronautical knowledge and aeronautical skill standards established in the United States for the certificate you are seeking to obtain. When the DPE signs your temporary pilot certificate, he or she is attesting that you are competent not only to carry yourself aloft — something you've already been doing during solo practice — but also to carry passengers.

A second way to reduce check-ride stress is to remove some of the mystery of the process. There is certainly no mystery as to the range of questions to answer and maneuvers the DPE will expect you to demonstrate, because they are all outlined in the FAA's Practical Test Standards, or PTS. Every certificate the FAA issues has some form of practical test; there is a published PTS for each one. The PTS lists both the subjects to be addressed in the oral exam and the maneuvers you should be able to execute. It also includes a checklist of what you, the applicant, should bring to the test.

While we'd all like everything we do on the check ride to be perfect, reality often gets in the way. One of the most helpful parts of the PTS is that it provides a range of limits, or parameters, for what constitutes a passing performance. For example, in steep turns you must maintain your entry altitude +/- 100 feet (in addition to other requirements).

Think of the PTS as the rulebook for your check ride. Stay inside the rules and you pass. It's that simple. FAA provides all the pilot PTS documents at no charge online at: http://www.faa.gov/training_testing/testing/airmen/test_standards/pilot/

How the Salami Gets Made

For the sake of this article, we'll have to make a couple of assumptions because the process differs somewhat depending on how you're training. For the purposes of this discussion, let's assume you are training under part 61.

Let's imagine that you're getting close to completing your training. The check-ride process begins when your instructor tells you it's time to schedule this rite of passage with a DPE. As you probably gathered from the earlier discussion, DPEs are flight instructors who are authorized by FAA to conduct check rides on the basis of their skill and experience. They usually charge a fee for their time on a per-test basis. DPEs conduct almost all private-pilot check rides. If you do not wish to use a DPE, you may request a check ride from an FAA Aviation Safety Inspector (ASI). To take that route, however, you would need a fairly compelling reason. The wait can be long because resources at the local Flight Standards District Office are limited. Most people prefer to go with a DPE.

How do you find a DPE? Many flight schools have a list of DPEs in the local area. But you can also search online at: http://av-info.faa.gov/DesigneeSearch.asp. It's a good idea to ask around and see if some of the other pilots in your area have suggestions. After that, you or your flight school will schedule the exam with the DPE.

Now, it's time to get ready. You may want to practice by finding a different instructor to give you a practice check ride. Take it seriously. Treat the practice check ride just as you would approach the actual check ride. This dress rehearsal serves several purposes. First, it gives you a chance to get used to the experience of being evaluated. Second, it gives you a chance to get feedback from a different instructor, which could further sharpen your skills. Third, it might help you gain experience flying with an unfamiliar pilot in the right seat.

Take a Deep Breath

On the appointed day, you meet the examiner. Confidence comes from knowing the standards, and knowing that you have already flown to those standards in order to get your instructor's recommendation for the test. Remember that the DPE is a person who has been where you are right now, probably many times. It's worth asking the DPE what you can expect in terms of his or her approach, although most will provide that information at the beginning. A DPE is required to conduct the check ride in accordance with FAA standards and procedures, but all people are different and it helps to know what to expect.

Concentrate on answering each question to the best of your ability. In the airplane, focus on each maneuver as you fly and try not to fret about the next maneuver or about mistakes you think you made on the last activity. If you are not sure what the examiner is asking you to do, ask for clarification. That's part of being pilot in command and, after all, the check ride is your first flight as PIC. Don't increase your stress by trying to guess what the DPE is thinking. As with people in the general population, some DPEs are more gregarious than others. A DPE who is mostly silent is not sending you a message of disapproval. Just remember that if you complete a maneuver and the DPE moves on without comment, it most likely means you're doing fine. You will know if you have not performed in a satisfactory way. If you have failed a maneuver, the DPE must tell you that and give you the option of terminating the flight or continuing in order to get credit for the remainder of the maneuvers that are performed satisfactorily.

Focus on each maneuver as you fly, and try not to fret about the next one, or about mistakes you think you made on the last activity.

Finally, try to relax. Take a deep breath and execute the plan, just as you have done throughout your training. Remember, the DPE or ASI doesn't want to see you fail. Their job is simply to determine that you are ready for those wings. Good luck and happy flying!

James Williams is FAA Safety Briefing's assistant editor and photo editor. He is also a pilot and ground instructor.

Photo by Susan Parson

TOM HOFFMANN

Flying by the Rules

A Guide to Understanding Federal Aviation Regulations

Photo by Tom Hoffmann

With football playoff mania in full swing this time of year, it's not uncommon to hear the collective yelps and yammers emanating from households nationwide. (Admittedly, they could just as easily be from those receiving their post-holiday credit card statements!) As fans will tell you, football can be an exciting sport to watch, but it does have its share of physical risks. That's why NFL players are held to rigorous standards to help provide a fair and safe environment. Even as the game evolves, recent rule changes — such as better protection for defenseless players and banning most helmet-to-helmet contact — are evidence of an ongoing effort to manage risk, while preserving player safety and fan enjoyment of the game.

The situation is similar in aviation. Airmen face infinite scenarios, many of which involve risk, and all of which demand a keen sense of awareness. And while the "aviation rulebook" doesn't lay out instructions for every situation, it does provide a comprehensive and important foundation for safe operations. That's why understanding and respecting the rules of the game are critical in making the aviation system safe for everyone. But, that also doesn't mean memorizing every rule. Knowing what parts cover what subjects and where to look for answers can give you a tremendous head start in being able to "fly by the rules."

A Tall Order

Despite the seemingly overwhelming nature of federal regulations, known formally as the Code of Federal Regulations, or CFR, there is order in the architecture of the rules. With a little effort and the right tools, you'll be able to glide through the regs and perhaps even wow your fellow airmen with your knowledge. Granted, this knowledge may not make you the life of a Super Bowl party, but it could prove especially helpful when in the company of an inquisitive check pilot.

Starting from the top, Title 14 of the CFR covers the topics of aeronautics and space. Incidentally, 14 CFR is one of 50 titles that represent broad areas subject to fed-

eral regulation, everything from food and drugs to national defense.

The first chapter of 14 CFR pertains to the FAA, and it encompasses a series of lettered subchapters and parts numbered 1 through 199. With a few exceptions, parts are further broken out into subparts that help identify a particular subject, e.g., part 91, subpart B covers flight rules. Drilling down further, you'll see the use of numbers and lower-case letters to organize and identify paragraphs related to the parent topic. Using the previous example with part 91, you'll see that section 91.103 (Preflight action) paragraphs (a) and (b) contain the information a pilot in command must be familiar with before a flight.

Part and Parcel

Following is a list of parts of particular interest to typical general aviation (GA) pilots and mechanics.

Part 1 Definitions and abbreviations

Part 21 Certification procedures for products and parts

Part 39 Airworthiness Directives

Part 43 Maintenance, preventive maintenance, rebuilding, and alteration

Part 61 Certification: Pilots, flight instructors, and ground instructors

Part 65 Certification: Airmen other than flight crewmembers, e.g., mechanics

Part 91 General operating and flight rules

Part 141 Pilot schools

Part 145 Repair stations

Part 147 Aviation maintenance technician (AMT) schools

Becoming familiar with these parts will provide a good starting point for answering many of your questions. From there, glancing through a part's table of contents, or its subpart and section titles, should get you on your way. For example, maybe you want to know what the requirements are for a commercial certificate or how many hours of cross-country time are required for an instrument rating. In both cases, part 61 is where you want to start your search. You can reference the part's table of contents to find the exact section you need.

Stuck on a particular acronym? Check out the glossary in part 1. Not sure what constitutes a major repair or alteration or what maintenance tasks a pilot can perform on his or her aircraft? Part 43 has your answers. Or, maybe you want to double check fuel requirements in case conditions for an upcoming flight become IFR. Turn to part 91; you'll see exactly what you need under section 91.167.

Crosscheck and Verify

Some tasks may require you to cross-reference several sections of the same part, or even search more than one part for a complete answer. For example, obtaining a special airworthiness certificate for a light-sport category aircraft may you require to reference part 21 for eligibility requirements, part 91 for operating limitations, and also part 1, which contains the definition of light-sport aircraft. In these cases, it might be worthwhile to recruit the help of resources like the *Pilot's Handbook of Aeronautical Knowledge*, *Airplane Flying Handbook*, Advisory Circulars, or other products in which regulations are summarized for particular scenarios.

Mnemonics are also useful when it comes to recalling some of the more comprehensive regulations. On determining airworthiness, the term "AV1ATE" can help you remember your aircraft's required maintenance and inspection items. (See the article "Airworthy or Not?" in the May/June 2009 *FAA*

Did You Know...

To allow room for future additions, only odd numbers are used to number paragraphs in 14 CFR. An even-numbered paragraph lets you know it was inserted after its original issuance.

Aviation News for more).

Another great tool for learning your way around the regs is using the online electronic Code of Federal Regulations (e-CFR) at http://ecfr.gpoaccess.gov/. To find aviation regulations, choose Title 14 from the drop down menu on the home page. In addition to ensuring you are referencing the most recent information, the e-CFR also provides some advanced search capabilities. With a simple search, you can look for a term within a specific region of a selected title. Or, get even more specific with a Boolean search where you combine terms using words such as AND, OR, and NOT, to limit, widen or define your search. Wildcard searches will also work if you're unsure of a term's exact spelling. They're the ones where you use an asterisk* for the missing word or character.

Other Documents

Besides the aviation-related parts of the CFR, pilots should also be familiar with the National Transportation Safety Board's (NTSB) set of rules, requirements, and definitions as outlined in 49 CFR part 830, or NTSB 830. Here you find what defines an aircraft accident and incident and what actions are required concerning these events. It's worth noting that if you are involved in an accident or a serious incident as defined in part 830, or if an aircraft is overdue and believed to have been in an accident, you must immediately notify the nearest NTSB office. A recent change to this regulation now defines a loss of 50 percent of an aircraft's electronic cockpit displays as a serious incident requiring NTSB notification.

Although found under the transportation section of the CFR (Title 49), NTSB 830 is typically included with commercially published copies of the regulations and can be found on many aviation websites.

Keep it in Perspective

Whether you're new to flying or plan to pursue an additional rating or certificate, one of the most effective ways of learning and understanding new regulations is to simply get out and fly.

"Hand-in-hand with a proper knowledge of regulations has to be flight experience," says FAA Aviation Safety Inspector Joseph Morra. "You can't have all theory and no practice and expect to absorb the meaning of all the rules."

This is particularly the case with many student pilots who at first might feel put off by a long list of complex rules. A good flight instructor should plan to integrate as many practical applications of rules as possible during a flight to reinforce their relevance and importance to safety.

Getting Involved

One of the more reliable aspects of aviation is that it is subject to change. As a result, the rules that regulate aviation must also be able to accommodate change. But with change comes a unique opportunity for an airman's voice to be heard. When a new regulation or a change to an existing one is considered, the FAA issues a Notice of Proposed Rulemaking (NPRM), which allows the public a timeframe in which to provide feedback directly to the FAA.

Although the process can sometimes take several years before a rule change is implemented, the FAA carefully reviews all comments and provides responses to them in the final rule. A good way to stay up to speed on rule changes is by checking the Federal Register online (www.federalregister.gov.). Here you can sign up to receive notifications when a new aviation rule is proposed. Comments can be made by referencing the proposed rule on www.regulations.gov, or by following the directions provided in the NPRM. Airmen should also be aware of 14 CFR part 11, which explains how someone can petition the FAA to issue, repeal, or change a rule.

Just like a football team needs order and a regulatory framework to be fair and successful, so,

FAA Subchapter Topic Listing for 14 CFR

- A: Parts 1-3, Definitions
- B: Parts 11-17, Procedural Rules
- C: Parts 21-49, Aircraft
- D: Parts 60-67, Airmen
- E: Parts 71-77, Airspace
- F: Parts 91-105, Air Traffic and General Operating Rules
- G: Parts 119-139, Air Carriers and Operators for Compensation/Hire: Certification and Operations
- H: Parts 140-147, Schools and Other Certificated Agencies
- I: Parts 150-169, Airports
- J: Parts 170-171, Navigational Facilities
- K: Parts 183-193, Administrative Regulations
- L-M: Reserved
- N: Parts 198-199, War Risk Insurance

Figure 1 – FAA Subchapters found in Chapter 1 of Title 14 Code of Federal Regulations

too, does aviation. Many pilots might begrudge the number of regulations that must be learned and followed, but it's important to remember that they exist for a reason: to support safety by prescribing standards in the ever-changing and increasingly complex aviation industry. Some might argue rules take the fun out of aviation. But at the end of the day, keeping everyone safe and able to fly another day is what matters most.

Tom Hoffmann is associate editor of FAA Safety Briefing. *He is a commercial pilot and holds an A&P certificate.*

Learn More

Electronic Code of Federal Regulations, select Title 14 Aeronautics and Space
http://ecfr.gpoaccess.gov/

FAA Petition for Rulemaking
http://www.faa.gov/regulations_policies/rulemaking/petition/#rulemaking

AOPA Safety Advisor: Federal Aviation Regulations
http://www.aopa.org/asf/publications/SA28.pdf

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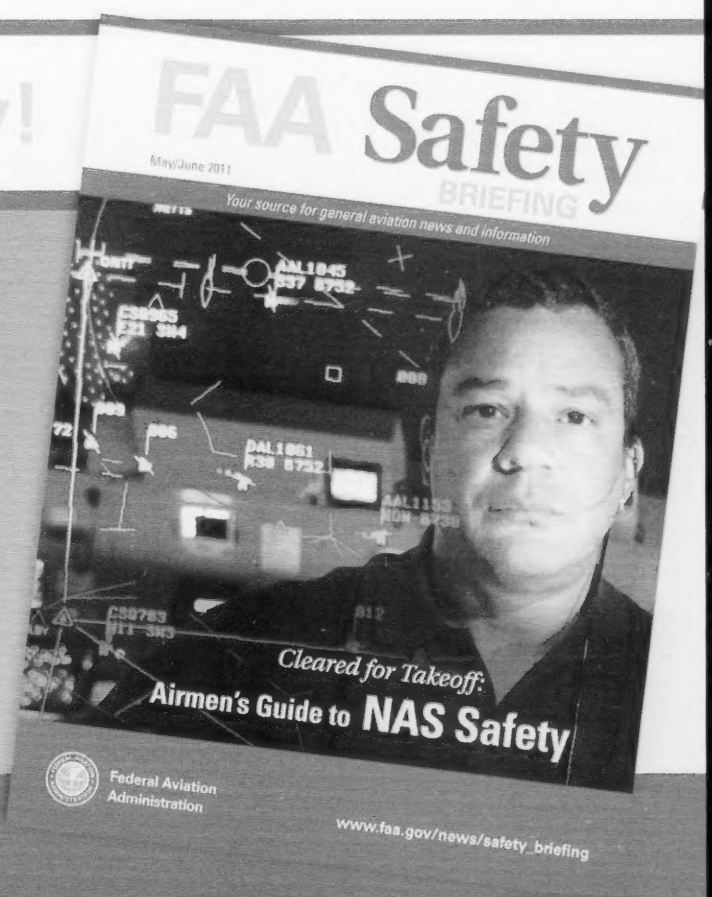


BRYAN NEVILLE AND SUSAN PARSON

A Feather in Your Cap:

Earning Your First Pair of WINGS

(Editor's Note: The "feather in your cap" expression originated in the ancient hunter's custom of placing a game bird's feather in the cap or hat band as a mark of success, skill, and prowess. Today's use is similar, denoting an achievement or success that can help the person in the future.)

Earning your wings as a pilot is the focus for this issue of *FAA Safety Briefing* and the process of flight training provides a number of exciting milestones. There's the first flight as a student, when you get to take the controls and realize that you really can fly. There's the first solo — truly an unforgettable occasion for every aviator. At some point comes the first trip outside the local practice area and the first solo cross-country. Then, the day arrives for your check ride, which is also the first time you fly as pilot in command (PIC). For many pilots, the first passenger-carrying flight follows shortly thereafter.

WINGS is based on the premise that pilots who maintain currency and proficiency in the basics of flight will benefit from safer and more enjoyable flying experiences.

Then...what? There are plenty more "firsts" to achieve in your life as an aviator, but here's a suggestion that will not only help you maintain and enhance that hard-won proficiency, but also offer another milestone: Your first pair of official wings to wear, ideally on an aviator's leather jacket.

Gathering the Feathers

Earning your first pilot certificate is a significant feather in your cap. But, it takes a few more feathers to earn WINGS credit in the FAA's pilot proficiency program. First, the explanation: WINGS is the FAA's free online pilot proficiency program available through FAASafety.gov. The WINGS program's objective is to mitigate the primary causal factors of accidents that continue to plague the general aviation (GA) community. WINGS is based on the premise that pilots who maintain currency and proficiency in the basics of flight will benefit from safer and more enjoyable flying experiences. Accordingly, it outlines requirements for each aircraft category and class and includes subjects and flight maneuvers appropriate to pilots operating those aircraft.

Participation is easy. Once you sign up on FAASafety.gov, you create your personal WINGS profile and select the category and class of aircraft you will fly in the program. The FAASafety.gov WINGS section will guide you to the education and training curriculum suitable for your individual flight

requirements. The program outlines the subject areas you need to study through online courses, and it specifies the level of flight proficiency in the Practical Test Standards (PTS) Areas of Operation that correspond to the leading causal factors in accidents.

Accident causal factors fall into six major areas: 1) aeronautical decision-making; 2) performance and limitations; 3) preflight planning, risk management, and fuel management; 4) takeoffs and landings; 5) positive aircraft control; and 6) basic flying

How Effective is WINGS?

A recent FAA analysis sought to correlate WINGS participation with accidents that occurred under 14 CFR part 91 during a recent three-year period.

In 2008, there were 257 fatal accidents and 1,190 non-fatal accidents. In 2009, there were 275 fatal accidents and 1,054 non-fatal accidents. In 2010, there were 268 fatal accidents and 1,047 non-fatal accidents.

After reviewing detailed data from the FAA Data Analysis Branch, flights with the following characteristics were excluded from the analysis:

- Operating under 14 CFR parts 121, 125, 129, 133, 135, and 137.
- Operating under 14 CFR part 141, because the PIC was either a solo student or an airman who was acting as a flight instructor.
- Operating with a mechanic as the sole manipulator of the controls.
- The PIC was a student pilot flying solo.
- A student pilot was flying and the NTSB found that the flight instructor failed to intervene.
- Data were not sufficient to identify the PIC (about 4 percent)
- Determined to result from a maintenance cause.
- Involving a non-U.S.-certificated pilot and a non-U.S.-registered aircraft.

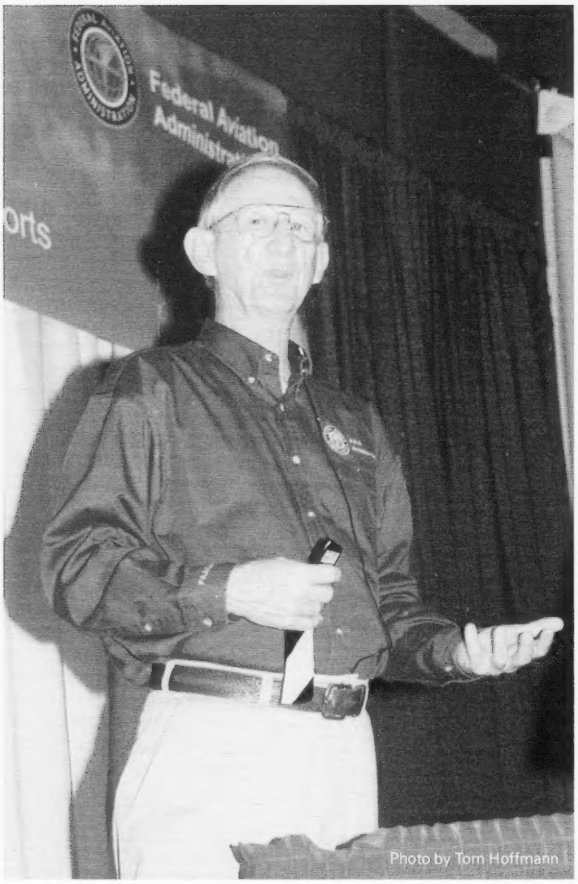
The study therefore counted 3,654 accidents that occurred in a three-year period (2008-2010) during operations under 14 CFR part 91.

As discussed in the article, the study looked at whether pilots involved in these accidents did or did not have WINGS participation prior to the accidents, but there was no way for this analysis to determine a true cause-and-effect relationship.

A review of the 25 accidents involving WINGS pilots revealed the following:

- Ten were classified as loss-of-control accidents. Of these, 4 involved low-time tail-wheel pilots and 3 involved water landings by low-time seaplane pilots. There was one additional takeoff accident and one additional landing accident. There was also an accident that resulted from spatial disorientation in the traffic pattern at night.
- Five accidents were the result of engine failure. In the analyst's opinion, each of these accidents was completely preventable. Three resulted from fuel exhaustion due to poor preflight planning. One was the result of carburetor icing when a pilot departed after receiving a weather briefing that stated that "carburetor icing was possible at all altitudes." One resulted from water in the fuel tanks of an airplane that had sat outside open to the elements for many years. The NTSB report referred to "a poor preflight inspection."
- Ten were due to a variety of causes. One pilot hit a deer on a night takeoff at a field without a complete fence. One pilot forgot to lower his landing gear. Another pilot was new to night flying, landed too fast, and ran off the end of the runway. Still another loaded an airplane to gross weight at a high-density-altitude airport and hit the approach lights on takeoff. One was a glider malfunction on a towed takeoff. Another was a pipeline patrol accident at low altitude. There were two VFR flights into IMC conditions. And, finally, two pilots in helicopters lost control during flight.

This review suggests that flight and ground instructors should give more attention to two major areas when working with students: more effective transition training and proper preflight planning (with emphasis on performance and limitations).



skills. Conveniently, the first three are knowledge areas and the second three are flight skills.

Most importantly, the WINGS Pilot Proficiency Program offers GA pilots a structured recurrent training program tailored to the individual's specific needs. To further emphasize the value of the program, the FAA has for many years stated that achieving a phase in WINGS satisfies the regulatory requirement for a flight review. Ongoing training to maintain WINGS currency at the Basic level or higher means that you will always have a current flight review. Also, many aviation insurance companies offer a premium discount for participation in the program, so check with your provider.

The WINGS Pilot Proficiency Program offers GA pilots a structured recurrent training program tailored to the individual's specific needs.

Staying current with the program is easy. Your flight review information is documented in your WINGS profile on FAASafety.gov; in addition, the program reminds you when currency requirements are due.

Do the Feathers Really Fly?

For those who wonder if the WINGS program really works as a safety tool, here are a few interesting observations arising from a recent FAA analysis (*see sidebar for details*) that sought to correlate WINGS participation with accidents that occurred under 14 CFR part 91. The study counted 3,654 accidents that occurred in a three-year period (2008-2010) during operations under 14 CFR part 91. Of these, there were just 25 pilots, or 0.68 percent of the total number of accident pilots, who had earned a WINGS phase before the date of the accident. Of those 25 pilots, only 12 had a current phase of WINGS at the time of the accident. Those 12 represent just 0.33 percent of the total pilots who had an accident. Furthermore, only four of the pilots involved in 712 fatal accidents during this period had earned a phase of WINGS before their accidents, and only one had a current phase of WINGS when the accident occurred.

Full disclosure: There was no way for this analysis to determine whether WINGS participation truly influenced the accident rate observed in the study. In the classic chicken-and-egg debate, some might argue that WINGS participation reduces accidents by raising the pilot's proficiency and awareness of risk management. Others might assert the "birds of a feather" argument that, since WINGS is a voluntary program, the pilots most likely to participate are those who already possess the right stuff in terms of knowledge, skills, and attitudes. Either way, you can't go wrong by taking part in the WINGS Pilot Proficiency Program as a way to keep your aviator's wings supple and strong and help ensure you return safely to the nest every night!

Bryan Neville is an FAA Operations Inspector presently assigned as the outreach program manager for the FAA Safety Team. He is a longtime flight instructor.

Susan Parson is a Special Assistant in the FAA's Flight Standards Service and editor of FAA Safety Briefing. *She is an active general aviation pilot and flight instructor.*

Learn More

FAASafety.gov
http://www.faasafety.gov

WINGS Pilot Proficiency Program (AC 61-91J)
http://www.faa.gov/documentLibrary/media/Advisory_Circular/AC%2061-91J.pdf

WINGS Pilot Proficiency Program User's Guide - 2011
http://www.faasafety.gov/documents/Wings_Manual.pdf

SUSAN PARSON

Checklist

It's Not Just Academic

The difference between school and life? In school, you're taught a lesson and then given a test. In life, you're given a test that teaches you a lesson.
– Tom Bodett

I get it. Although I'm one of the geeky oddballs who actually enjoyed my time in private pilot ground school, I realize a number of my fellow aviators grudgingly approach it as a necessary evil, or worse, as a noisome speed bump on the runway to the target pilot certificate or rating.

Whenever I have an opportunity to teach ground school, though, I try to make it interesting and fun "edutainment," and also try to convey a key point. With some acknowledged exceptions the FAA is working to address in consultation with the flight training community (see more on that below), the material presented in ground school is not just academic mumbo-jumbo. On the contrary, there is a great deal of information you will need not only to pass the FAA knowledge test (formerly and still colloquially known as "the written"), but, more fundamentally, data you will need to pass the many real-life tests aviation demands with the proverbial flying colors.

In Search of Excellence

In this issue's Jumpseat column, FAA Flight Standards Service Director John Allen writes about the pursuit of perfection and excellence in aviation education and training. This starts with your approach to ground school and your willingness to get beyond a memorize-the-answer mentality in favor of a true understanding.

Here's an example relating to the topic of aerodynamics. I'm the first to agree that there is no need for a student pilot to know (or even see) the mathematical equation for lift that I once watched a fellow ground school instructor present to a wide-eyed audience. But you do benefit from a practical understanding of basic aerodynamics. After presenting the four forces of flight (lift, weight, thrust, and drag), for instance, I note that the pilot's job is to manage those forces, both separately and in relation to each other. We go on to talk about the specific things a pilot can do to manage each force. For example, you can generate additional lift by increasing the angle of attack (an important concept to know), by increasing speed, or — to a point — both. The pilot manages weight by determining how much fuel, how many passengers, and how much baggage to carry. Though somewhat limited by the specific airframe and powerplant configuration, there are also things a pilot can do to manage the levels of thrust and drag. The point is that if you direct your energy entirely to memorizing specific phrases or definitions you are depriving yourself of the broad conceptual knowledge and understanding you can apply in your real-world flying.

Ground school presents a great deal of information you will need to pass the many real-life tests aviation demands with the proverbial flying colors.

The Big Picture

As Tom Hoffmann reported in the November/December 2011 *FAA Safety Briefing* Angle of Attack article, the FAA established an Aviation Rulemaking Committee (ARC) to address concerns about the relevance of the FAA's airman testing and training standards. As part of the agency's five-year plan to improve general aviation (GA) safety the ARC, whose work is now underway, is providing a forum for key players in the GA training community to offer their experience and expertise and recommend ways to improve airman testing and training.

In the meantime, I hope you will heed the advice I offer to my ground school students: Focus not on the real or perceived shortcomings of the testing process, but rather on truly mastering the material you will need to pass the "real-life tests" and become a safe, proficient, and competent aviator.

Susan Parson is a Special Assistant in the FAA's Flight Standards Service and editor of FAA Safety Briefing. *She is an active general aviation pilot and flight instructor.*

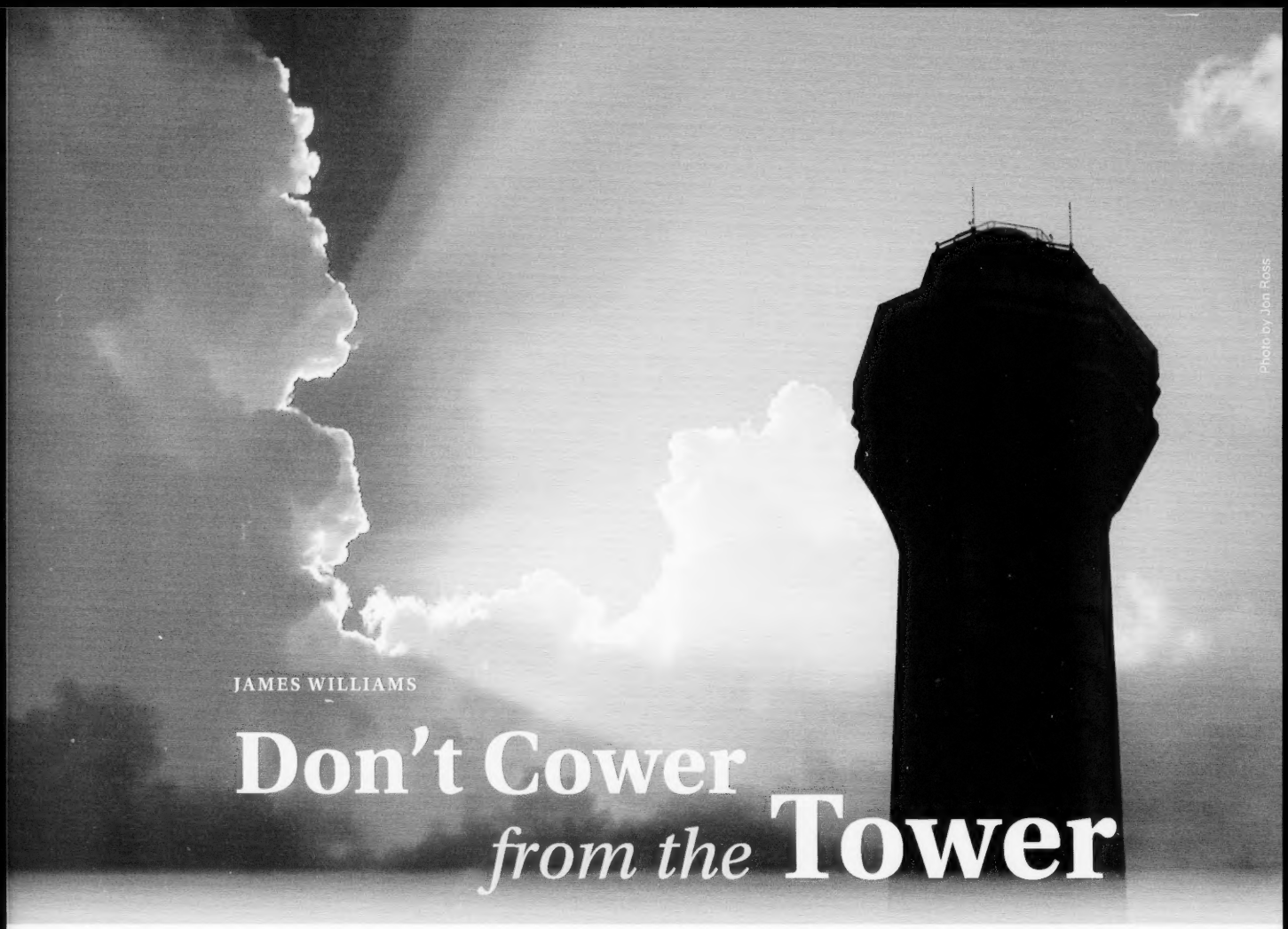


Photo by Jon Ross

JAMES WILLIAMS

Don't Cower *from the* Tower

In most areas of life, first impressions make a lasting impression. Certainly that holds true for aviation. In fact, the "law of primacy" is one of the early lessons taught to fledgling flight instructors in the FAA's fundamentals of instruction curriculum. That's the formal way of saying that our initial experiences have a powerful influence in forming our lasting view on a given subject or experience. In my admittedly unscientific study, it appears that a pilot's initial operating environment influences his or her long-term view of towered and non-towered airports.

Inexperience makes any task seem to be a much larger hassle than it is.

Stop the Madness!

I am a case in point. Most of my primary training was done at a towered airport, which instilled confidence and comfort in talking on the radio with controllers. I remember and acknowledge that it took some time to build up the skills to fly and talk at the same time without stumbling over either task, but it was the only world I knew and I gradually became proficient.

Eventually, I had to leave the familiar comfort of my towered home field for other airports. My first few trips to non-towered (or "uncontrolled," as we called them at the time) airports were largely uneventful due to light traffic in the area. But then came the solo flight that was to provide a rude awakening. At a point around 10 miles from the airport, I switched to the Common Traffic Advisory Frequency (CTAF). I was shocked and flustered; The explosion of radio chatter came so fast and furious that it almost sounded like a foreign language. I managed to establish that there was a Cessna on downwind, a Piper on final, and another Cessna entering the traffic pattern. That was just the traffic from calls I could understand. The level of chatter led me to conclude there were about 15 other airplanes in the vicinity. I was acutely aware that I had no idea where most of them were.

At that point, I decided to hit the metaphorical pause button and circle about 10 miles from the airport. After a couple of turns and a few minutes of listening, my shattered confidence slightly recovered. I

made my way in, completed my touch-and-go landing, and was on my way back to the perceived sanity of my friendly towered airport. Though completed safely, the whole non-towered experience left my confidence wounded. I made up my mind to limit my exposure to those nasty uncontrolled airports.

But that was not realistic, and it was certainly limiting. After some reflection, I realized that my problem was only a matter of inexperience. I had very little experience at any non-towered airport, much less a busy one. I resolved to use my humbling experience as an incentive to focus more on radio communication, which I did and it helped me become a better pilot. The real solution, the key to feeling much more at home at a non-towered airport, came a year or two later when I spent a summer flying out of one. But, the law of primacy prevails. To this day, given the choice, I would always opt for the towered airport.

Who Made You My Boss?

There is, of course, a mirror image to my experience. The second group of pilots from my unscientific study includes those whose initial training took place at a non-towered airport. My father illustrates this point. He learned to fly about 10 years before me and flew out of our local non-towered airport. Just as I prefer the familiarity of the towered airport, his strong preference is to avoid ATC as much as possible. Please don't misunderstand. My dad is a perfectly capable pilot, and he can easily deal with ATC. But on the father-son trips we've flown together, I usually get the request, "Hey, why don't you take the radios?"

Anecdotal evidence from years of chatting with fellow pilots suggests that the non-towered preference group is larger. In fact, we regularly receive complaints from general aviation pilots about the inability to fly from point A to point B without talking to an ATC facility. While my personal reaction may be to wonder why talking to ATC is such a burden, I've learned that the root cause is the same one I experienced in the opposite situation: inexperience. Inexperience makes any task seem to be a much larger hassle than it is.

How Do We Fix It?

A good pilot is proficient in all types of airspace and, with new towers, airspace restrictions, and security requirements, it is important to have good radio communication skills. Practice is the key. If you normally fly at towered airports, make it a point to practice at non-towered fields, and vice versa. I understand that in some cases it is not feasible since the nearest tower could be 100 miles away. But there are still things you can do to make the most of the opportunities you do have.

The first thing to do is get a copy of the Aeronautical Information Manual (AIM) (available at: http://www.faa.gov/air_traffic/publications/ATpubs/AIM/). Chapter 4 addresses just about everything associated with ATC that a pilot needs to know. While it's all good information, let me direct your focus to sections two and three. Section two covers radio communication, and is replete with good examples of radio transmissions and explanations. Section three covers airport operations. Taken together, these sections can help you build a mental script and map out the radio calls you can expect to hear in various flying environments.

Another tip is to listen to as much ATC as possible. There are websites and even mobile applications that let you tap into live ATC feeds. By listening to these "radios," even passively, you can become more familiar with the language of aviation. Any time you can spend actively listening, particularly to the feed of an airport you know or use, will help you refine your mental script. You can find feeds of both towered and non-towered airports, although the towered airports seem to be more abundant.

Web sites and mobile applications that let you tap into live ATC feeds will help you become more familiar with the language of aviation.

These two methods can improve your comfort level as well as your experience for your next flight, while costing nothing but a little time. That, in turn, can make your next flight less stressful. Lowering stress not only makes your flight more enjoyable, but also safer. And, of course, safe and enjoyable flying is a cause we all support.

James Williams is FAA Safety Briefing*'s assistant editor and photo editor. He is also a pilot and ground instructor.*

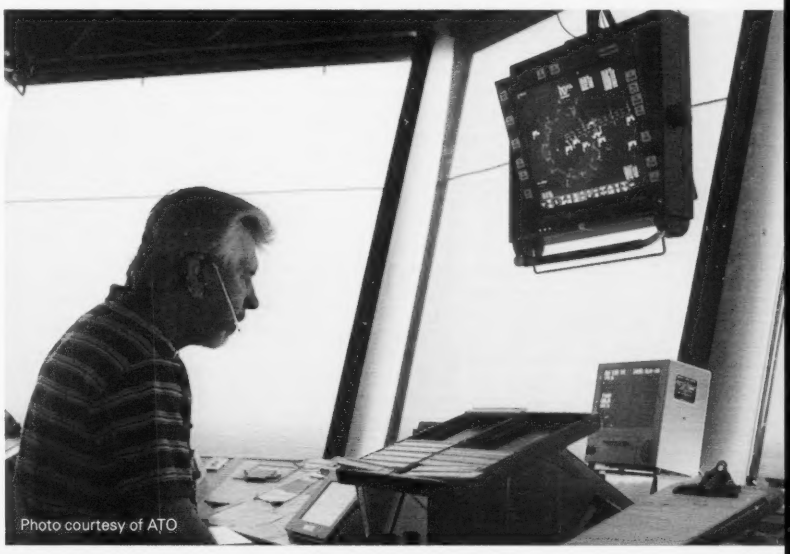


Photo courtesy of ATO

TOM HOFFMANN

Nuts, Bolts, and Electrons

The Human Factors Zone

New AMT Handbook Chapter Helps Unlock the Mystery of Human Factors

Imagine yourself traveling through another dimension; a dimension not only of sight and sound, but — especially — of mind. You're moving into a land of both shadow and substance, of things and ideas. A journey into the curious land of the human condition. You've just crossed over into...the *Human Factors Zone*!

Okay, so that's not really how the new human factors chapter of the Aviation Maintenance Technician's (AMT) Handbook starts off, but I think Rod Serling may be on to something. For years, human factors issues have plagued the aviation industry, presenting more twists, turns, and mind-bending complexities than even the best episode of *Twilight Zone* could deliver. And, while much of the attention has been focused on the pilot community, human factors can be linked to 80 percent of maintenance errors, which in turn cause or contribute to many aircraft accidents. In addition, these errors also affect productivity and cause worker injuries.

The new human factors chapter focuses on each of the dirty dozen, how to recognize their symptoms, and helpful mitigation tips.

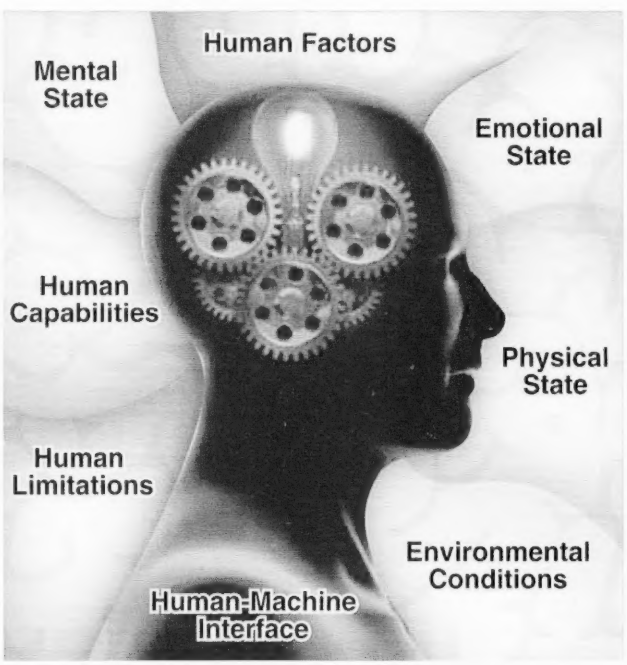
What's an AMT to do?

For starters, check out the newly minted human factors addendum to the AMT Handbook. Recognizing this topic's growing importance, the FAA dedicated the new chapter (Chapter 14) to unveiling the mystery of human factors as it pertains to maintenance professionals.

"AMTs are exposed to a set of human factors unique in aviation; everything from loud noises and smelly fumes to poor instructions and unrealistic deadlines," says FAA Airworthiness Safety Inspector Ed Hall. "A better awareness of these factors and how they can disrupt your work routine is critical to preventing them from becoming a problem."

Many of these common human factors are explained in the addendum, including a special focus on the "Dirty Dozen," a phrase coined by Transport Canada to describe 12 of the most common risk factors found in aviation maintenance. The chapter explains in detail each of the dirty dozen, how to recognize their symptoms, and what actions you can take to mitigate their deadly effects.

Complacency is an example of one of the dirty dozen that can easily creep into a mechanic's routine with deadly consequences. For mechanics, a repetitive task, especially an inspection item, may be overlooked or skipped simply because he or she has performed that task a number of times without ever finding a fault. The key to combating complacency, as the AMT Handbook states, is to stay mentally engaged in the task you're performing and train yourself to expect a problem with an item you're inspecting. Also, never assume that an item is acceptable when it has not been inspected.



Human factors and how they affect people are very important to aviation maintenance.

"This new human factors chapter is going to be an effective tool for AMTs," says Dr. Bill Johnson, FAA Chief Scientific and Technical Advisor for Human Factors in Aircraft Maintenance Systems. "Providing a fresh look on this topic will no doubt help AMTs identify and mitigate these potentially deadly accident precursors."

Johnson adds that the new handbook chapter is "a great primer for AMTs in training," especially as human factors becomes integrated with the AMT certification process. Beginning in mid-February 2012, AMT candidates taking the General Knowledge Test will be asked questions regarding human factors in aviation maintenance. Samples of these questions are available on the FAA website (see *Learn More* below). Part 147 AMT schools are integrating human factors topics into their training curriculums to prepare students for the change. In the near future, the FAA is also planning to integrate human factors-related content to the Practical Test Standards (PTS) for the General oral/practical exam. Check the PTS section of the FAA website (www.faa.gov/training_testing/testing/airmen/test_standards) for updates.

Although the warning signs in aviation maintenance can be small and subtle, errors can easily interconnect like links in a chain. To learn how to break that error chain, I invite you to explore...the *Human Factors Zone*!

Tom Hoffmann is associate editor of FAA Safety Briefing. *He is a commercial pilot and holds an A&P certificate.*

Learn More

FAA's AMT Handbook
www.faa.gov/regulations_policies/handbooks_manuals/aircraft/

Sample human factors questions for AMT General Knowledge Test
www.faa.gov/training_testing/testing/airmen/test_questions/media/HF_Sample_Questions_AMG.pdff

FAA Aviation Maintenance Human Factors Web Portal
https://hfskyway.faa.gov

"At War with the Dirty Dozen" – FAA Safety Briefing May/June 2009, page 30
www.faa.gov/news/safety_briefing/2009/media/mayjun2009.pdf

Keep Informed with

FAA's Aviation Maintenance Alerts

Aviation Maintenance Alerts (Advisory Circular 43.16A) provide a communication channel to share information on aviation service experiences. Prepared monthly, they are based on information FAA receives from people who operate and maintain civil aeronautical products.

The *Alerts*, which provide notice of conditions reported via a Malfunction or Defect Report or a Service Difficulty Report (SDR), help improve aeronautical product durability, reliability, and safety.

Recent alerts cover:

- broken/loose elevator balance weights on the Beechcraft B58 Baron
- failed landing gear shock absorber on the Piper PA-25 Pawnee
- corroded spar attach fittings on the Piper PA-28R-180 Arrow

Check out Aviation Maintenance Alerts at: *http://www.faa.gov/aircraft/safety/alerts/aviation_maintenance/*

TOM HOFFMANN

Angle of Attack

Stay the Safety Course

Exploring and Preventing What Causes GA Accidents

Starting in 2010, the FAA Safety Team (FAASTeam) began holding an annual safety standdown in April to start off the busy spring/summer flying season with a strong focus on safety. This year's 3rd Annual FAASTeam Safety Standdown will focus on three core topic areas:

- Loss of control
- Aeronautical decision-making (ADM)
- Proper preflight

The first of these two topics have been identified as causal factors in a majority of GA accidents within the last ten years, according to data from the General Aviation Safety Joint Steering Committee (GAJSC). Driven by a goal of preventing GA accidents, the Safety Standdown will help educate and raise awareness of these topics through a series of interactive presentations and special events held nationwide during April. This year's Standdown will be kicked off at the 2012 Sun 'n Fun International Fly-In & Expo in Lakeland, Fla.

Despite only a slight decline in the overall GA fatal accident rate, General Aviation and Commercial Division Manager Mel Cintron is optimistic about the efforts of an ongoing safety outreach program. "We've seen some tremendous support from the GA community," says Cintron. "But we must continue to stay the course to obtain the results we all seek – a significant downward trend in the accident rate."

A critical component of the plan is the Safety Standdown. "We're excited to once again host this unique event designed to arm pilots with practical information on topics that surface all too often in accident reports," says National FAASTeam Operations Lead Kevin Clover. We hope to see pilots taking advantage of this opportunity to help them become safer and proactive in these target areas."

Clover added that loss-of-control issues are of particular concern since, from 2001-2010, loss-of-control while in-flight accounted for 1,259 fatal GA accidents. A majority of those occurred during the maneuvering, approach, and enroute phases of flight.

In addition to reviewing practical stick and rudder skills needed to properly recover from loss-of-control situations, the Standdown will also stress the decision-making skills that can help pilots avoid them in the first place. "We often see that pilots are excellent problem solvers when it comes to a physical cause-and-effect issue, like calculating a correct airspeed or a landing distance requirement," says Clover. "However, sometimes pilots tend to overlook some of the softer skill sets, like human factors and decision-making skills, which when not properly addressed can just as easily lead to a fatal error."

The final component of the Safety Standdown will address a pilot's preflight skills. Here pilots will have a chance to review the importance of a thorough walk-around inspection as well as fine-tune their aircraft systems skills and their ability to detect signs of an impending mechanical problem.

"As the educational and safety outreach arm of the FAA, the FAASTeam is committed to serving the GA community and making our skies even safer," says National FAASTeam Manager Michael Costa. "The Safety Standdown is just one more valuable tool airmen can use to make a stand against error."

For more information on the Standdown topics, check out the online courses on FAASafety.gov (see Learn More below) as well as the Safety Standdown website (http://faasafety.gov/standdown/) where you can scope out the location of the nearly 100 Standdown events scheduled this April. Your local FAASTeam representative can also help find a Standdown event near you.

Tom Hoffmann is associate editor of FAA Safety Briefing. He is a commercial pilot and holds an A&P certificate.

Learn More

FAA Safety Team Course ALC-34, Maneuvering: Approach and Landing
https://www.faasafety.gov/gslac/ALC/course_content.aspx?cID=34&sID=161&searchresults=true&preview=true. .

LYNN MCCLOUD

Vertically Speaking

So, You Want to Be a Helicopter Pilot

How do you become a helicopter pilot? Where should you start?

"The best place for young people today to start," says James Lamb, Central Region, FAA Safety Team, "is to find a training provider that trains well and also helps with career development."

There are hundreds of part 141 training centers as well as part 61 programs, which provide helicopter instruction. In addition, selected colleges and universities provide helicopter flight instruction. For example, Kansas State University at Salina offers rotary wing flight training. To help in selecting the right school, the University Aviation Association offers guidance on "Considerations When Choosing a School."

The price tag to get the training and experience to earn a living as a helicopter pilot can be hefty. It's important to find the right place to provide students "with the skills, knowledge, and understanding as well as with a range of flying experience," says Aviation Safety Inspector Eric Carroll. "Beyond receiving training, it's important for prospective helicopter pilots to have an understanding of the prerequisites for employment and a plan to achieve them."

To get a head start, as well as for continuing education, check out the courses at the FAASafety.gov's Learning Center on helicopter operations. Helicopter – General and Flight Aerodynamics covers the basics and explains the four forces — lift, weight, thrust, and drag — that act on a helicopter in flight. It also explains additional physical characteristics and effects that are unique to a helicopter and its rotor system while in flight.

There are other courses, too, along with safety seminars and special events, which the FAA Safety Team (FAASTeam) puts on in cooperation with Helicopter Association International (HAI). If you are not already signed up, register at FAASafety.gov and on the Certificates & Ratings tab specify the rotorcraft certificates you have/are seeking in order to get information about helicopter events.

Check out the FAA's *Rotorcraft Flying Handbook*, a technical manual for applicants preparing for their private, commercial, or flight instructor pilot certificates with a helicopter or gyroplane class rating. The handbook includes detailed coverage of aerodynamics, flight controls, systems, performance, flight maneuvers, emergencies, and aeronautical decision-making.

It is never too early to get involved with a professional association and to start reading helicopter publications and websites. At www.rotor.com, HAI offers a student membership, with the first year free for full- or part-time students enrolled in a flight training school, A & P school, college, or university. The American Helicopter Society International (AHS), billed as the world's premier vertical flight technical society, also offers a student membership and has several technical publications. Both HAI and AHS offer scholarships.

Among the leading trade publications are Rotor & Wing, which includes a training tab on its website. For those interested in helicopter maintenance, check out www.helimx.com, a magazine dedicated to helicopter maintenance.

Educational resources are also available from manufacturers. For example, Bell Helicopter has a number of educational and safety materials available on its Helicopter Professional Pilots Safety Program, *or* ***HELIPROPS***, website including its Human AD newsletter, which stresses the human factors involved in actual accidents and incidents.

Lynn McCloud is a contributing editor for FAA Safety Briefing.

Learn More

Bell Helicopter / HELIPROPS
www.bellhelicopter.com/en_US/Training/Heliprops/Heliprops.html
FAA Rotorcraft Flying Handbook
www.faa.gov/library/manuals/aircraft/media/faa-h-8083-21.pdf
FAASafety.gov Learning Center: Helicopter – General and Flight Dynamics
https://faasafety.gov/gslac/ALC/course_content.aspx?cID=104m

U.S. Department
of Transportation
Federal Aviation
Administration
Report Wildlife Strikes
http://wildlife.faa.gov
http://www.faa.gov/wireless
USDA
QR Code Scanner for Smart Phone Users

Flight Forum

Mnemonics and More

AV1ATE – great mnemonic in *Trust, but Verify* (Sep/Oct 2011). Next time you mention it, perhaps change it to AV1ATER, with the last R for Registration. The registration is now a repetitive event, required every 36 calendar months.

Robert Hadow

Thanks for the suggestion; we'll pass it on to our readers. Another idea is to add a second registration "R" to the venerable AROW mnemonic: one to verify that the registration is present; another to verify that it is current. As many will remember, the "radio station license" letter was dropped several years ago since there is no need to carry a radio station license for domestic flights.

Trust, but Verify is a nice article. However, you recommend relying on others to give the renter a synopsis of times to inspections, ADs, etc., while in the same breath stating that the renter is responsible for ensuring the aircraft is airworthy. I have yet to see a rental place give me a type certificate data sheet for their aircraft. This is one of many reasons I own my own airplane. I have all the records and books and resources to stay on the legal side of flying.

Eric A Evans

Thanks for the comments. As the article observed, there are lots of pros and cons on both sides of renting versus owning an aircraft. One of the more significant advantages to owning an aircraft is the kind of certainty that you describe.

Keeping the Airport/Facility Directory Handy

Per your *Venturing Further Afield* (Nov/Dec 2011) article: Last month, while on a two-week southwest aerial tour, I needed to check out some property in Southeast AZ. Calling several airports in the area revealed that none of the closer ones had either loaner or rental cars available. I found that Sierra Vista/Ft. Huachuca (FHU) did, but the info in the A/FD was a bit unnerving. Since the tower was closed for my Sunday arrival and the surrounding SUAs were not active, I had no problem getting in. Departing on Monday was just a matter of requesting the favored takeoff runway and flying directly north along the highway to get through the restricted areas.

Mike White

You make a great point about the importance of checking the Airport/Facility Directory, which was the subject of the November/December Checklist department in FAA Safety Briefing. As the A/FD advises, KFHU is owned by the U.S. Army but open to civilians through a joint-use agreement. There are few services available to civilians, though, and fuel is limited to Jet-A. As your experience illustrates, it is very important to know before you go! Thanks for writing.

FAA Safety Briefing *welcomes comments. We may edit letters for style and/or length. If we have more than one letter on a topic, we will select a representative letter to publish. Because of publishing schedule, responses may not appear for several issues. While we do not print anonymous letters, we will withhold names or send personal replies upon request. If you have a concern with an immediate FAA operational issue, contact your local Flight Standards District Office or air traffic facility. Send letters to: Editor, FAA Safety Briefing, AFS-805, 800 Independence Avenue, SW, Washington, DC 20591, or e-mail SafetyBriefing@faa.gov*

Let us hear from you—comments, suggestions, and questions: e-mail SafetyBriefing@faa.gov

OR

Use a smartphone QR reader to go "VFR-direct" to our mailbox.

SUSAN PARSON

Postflight

Piloting Takes Perseverance

People sometimes ask how I got interested in flying. The only answer I can offer is that I think I was simply born this way. My first memory is an Eastern Air Lines Boeing 727 *Whisperjet* trip to New York City when I was three. I was enthralled. From then on, I wore pilot wings that I cut from my mom's stocking cardboard. I pretended to fly the glider on the backyard swing set. I counted contrails from the jets climbing out of the nearest "big" airport, North Carolina's Asheville Regional (KAVL). A high point of my childhood was a solo trip from Philadelphia (KPHL) to Charlotte (KCLT) when I was 13, on local-service airlines — Allegheny and Piedmont — that no longer exist. I wanted nothing more than to be in the sky.

I struggled to land without my efforts being registered as seismic activity on the Richter Scale and, embarrassingly, I *still* sometimes struggle with that.

A combination of fear ("Do I have the right stuff?") and finances (or, more accurately, lack thereof) kept me ground-bound until I was 28. Then, one day I took a step that profoundly changed — and defined — the course of both my life and my career. I signed up for a private pilot ground school offered by my county's adult education program.

Ground School

For the next six weeks, I was never far from my newly acquired copy of the FAA *Pilot's Handbook of Aeronautical Knowledge* (PHAK). My instructor, a crusty old fellow whose favorite expression was "piece o' cake," quickly grew to expect my "let's-try-that-again" questions when his stock explanation didn't produce an ah-hah moment of understanding. I struggled to master the concept of different kinds of altitude (*density* altitude?!) and airspeed (is "false" the opposite of "true" airspeed?!).

Truly baffling was the dark art of interpreting that mysterious instrument known as the Vee-Oh-Are, or the Very High Frequency Omni-directional Range (VOR). I still remember sitting on my living room floor, PHAK open in front of me, a test question study guide beside me, and scraps of paper everywhere with my scrawled attempts to visualize my position relative to the VOR station or, even more challenging, the non-directional beacon (NDB). For a "mathophobe" like me, it was a great triumph to get through the multiple interpolations required to answer some of the aircraft performance questions. But, I am nothing if not extremely stubborn, and once embarked upon the ground school path I was wholly determined to persevere.

Flight Training

Perseverance was certainly a handy habit when it came to the actual flight training. I was fortunate to have an excellent instructor and I loved the humble little Cessna 152s that carried me through the private pilot flight training curriculum. It wasn't always easy. I struggled to land without my efforts being registered as seismic activity on the Richter Scale and, embarrassingly, I *still* sometimes struggle with that.

I gritted my teeth through stall entries and, until the day my instructor dedicated an entire lesson to intensive emergency approach and landing procedures, I frittered away my altitude by endlessly searching for the perfect field. I stammered through radio calls, especially when making forays from my non-towered home airport to a field with an operating control tower. On my first solo cross country, I almost immediately became unsure of my position (the pilot's perennial euphemism for lost) and hastily beat a retreat to home base. To his credit, my instructor made me talk through my mistake and then sent me right back out to finish the trip — and I did.

Ups and Downs

As my own experience suggests, flight training is full of ups and downs — both the literal ones involving the aircraft and the emotional ones involving the acquisition of any new skill. But take it from me: It's well worth the effort. Persevere, enjoy the process, and welcome to the wonderful world of aviation!

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EMANUEL CRUZ

FAA Faces

Jabari Raphael

Aspiring Pilot Jabari Raphael Lands a Dream Job

Many employees begin their FAA journey with an abundance of aviation experience, whether from an air carrier, general aviation, or the military. However, sometimes the agency employs a young college graduate just beginning an aviation career. Case in point is FAA Safety Team (FAASTeam) Program Analyst Jabari Raphael.

"I wanted a job with more excitement, where I could travel all the time," Raphael says when explaining why he got into aviation. Originally focusing on sports medicine, a family member who worked for an airline piqued Raphael's interest in aviation. "He always got to travel."

After completing a few introductory courses in aviation, Raphael enrolled in the University of Maryland Eastern Shore (UMES) with plans to become a pilot. "Unfortunately, this is where the dream crumbled," says Raphael. "The economy in 2007 made it impossible to get a flight loan." Shifting his focus to aviation management, Raphael did not give up on his goal. "Somehow, some way, I still knew I was going to be a pilot. The means of getting there was just a little cloudy."

Raphael's pursuit of an aviation management degree led him to the FAA through a professor who encouraged him to take an internship with the agency. Raphael remembers the internship experience as "awesome."

"This was the first time I'd been out on an airfield; the first time I'd ever been on a ramp; the first time seeing jets close up. I participated in ramp inspections, facility inspections, pilot interviews, chart reviews, and more. It was amazing to see all I had read about in school come to life."

Raphael continued to participate in FAA internships during his academic development. One opportunity in the summer of 2009 led him to the Alaska Region FAASTeam.

"Alaskan airspace is a different beast," explains Raphael. "The weather changes so rapidly." From the development of cue-based pilot training focused on the risks of Alaska flying to increased outreach on the hazards of off-airport landing during hunting season, Raphael saw a lot more than the usual student pilot. Inspired, he signed on as a FAASTeam program analyst after graduating in 2010 with an aviation science degree.

"When I began pursuing a career in aviation, I had no idea I would be working for the FAA," he says. Yet, working for the FAA, especially the FAASTeam gives him a unique vantage point. "Working for the agency has allowed me to see both sides of the coin," he explains. "I get to see the eager young pilot's side and the FAA education and outreach."

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Raphael credits his involvement with the FAASTeam for helping his development as a pilot, particularly the WINGS program. "As an intern, I saw the WINGS program in action and how it helps foster safety," says Raphael. He quickly notes he is enrolled in the program. "Participating in such events as pancake breakfast safety seminars increases pilot awareness of to safety hazards.

Raphael's daytime duties focus on improving the FAASTeam's outreach programs. "I compile data and feedback from safety events and seminars and make recommendations for improvements," he explains. On the weekends, he continues to fly and train for his private pilot certificate. He sees it as a good combination. It allows Raphael a perspective beneficial to himself as a student pilot, and to the FAA.

Somehow, some way, I still knew I was going to be a pilot

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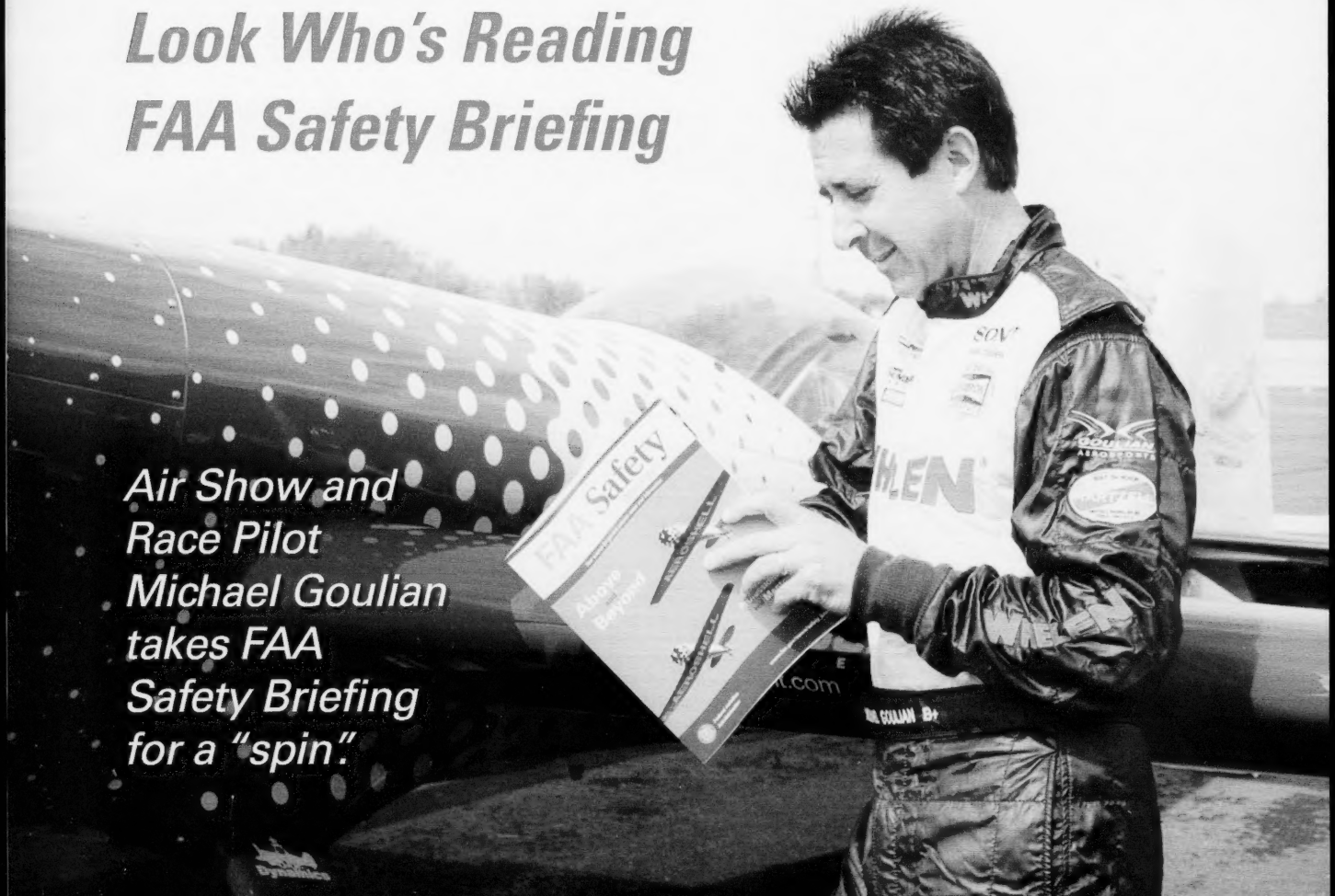

Air Show and Race Pilot Michael Goulian takes FAA Safety Briefing for a "spin".